BENCHMARKS AND GUIDELINES FOR EDUCATION-RELATED PROGRAMMES

BY

THE HIGHER EDUCATION COUNCIL

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ABBREVIATIONS AND ACRONYMS

AUCA:	Adventist University of Central Africa
CPD:	Continuous Professional Development
EAC:	East African Community
EAUR:	Eat African University Rwanda
ECD:	Early Childhood Development
ECLPE:	Early Childhood and Lower Primary Education
ESSP:	Education Sector Strategic Plan
GPA:	Grade point average
HEC:	Higher Education Council
HGL:	History – Geography – Literature in English
HLIs:	Higher Learning Institutions
HLP:	History–Literature in English – Psychology
ICK:	Institut Catholique de Kabgayi
ICT:	Information, Communication, and Technology
INES:	Institut d'Enseignement Supérieur
IUCEA:	Inter-University Council for East Africa
KP:	Kibogora Polytechnic
LE:	Languages Education
LEF:	Literature in English– French
LKK:	Literature in Kinyarwanda – Kiswahili
MCB:	Mathematics - Chemistry - Biology
MCE:	Mathematics - Computer Science - Economics
MEG:	Mathematics – Economics – Geography
MINEDUC:	Ministry of Education
MKU:	Mount Kigali University
MPC:	Mathematics – Physics – Computer Science
MPG:	Mathematics - Physics - Geography
NST:	National Strategy for Transformation
PCB:	Physics – Chemistry - Biology
PCM:	Physics - Chemistry - Mathematics
PIASS:	Protestant Institute of Arts and Social Sciences
REB:	Rwanda Basic Education Board
SDG:	Sustainable Development Goal

SME:	Science and Mathematics Education
SSE:	Social Studies Education
TDM:	Teacher Development and Management
TML:	Teaching Modern Languages
TSS:	Teaching Social Studies
TTC:	Teacher Training Colleges
TVET:	Technical and Vocational Education and Training
ULK:	Université Libre de Kigali
UNESCO:	United Nations Educational, Scientific and Cultural Organization
UR:	University of Rwanda

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Dr. Rose Mukankomeje
Director General

PREAMBLE

In a bid to strengthen the quality of education offered to pre-service teachers, contribute to professional development of in-service teachers and harmonize Rwandan education standards with those from the Inter University Council of East Africa, the Higher Education Council of Rwanda has developed the benchmarks of education-related programmes.

Those benchmarks will enable the Higher Education Council of Rwanda as a regulatory body to ensure that all higher learning institutions in Rwanda awarding a Diploma, an Advanced Diploma or a Bachelor's degree of education stick to the same standards in their efforts to train quality pre- and in-service teachers.

The benchmarks developed focus on the programme structure, indicative content, learning outcomes and credit weighting of all proposed modules across all years of study and subjects. Thus, those benchmarks will enable easier comparability with other education-related programmes offered in the EAC region, recognition and transferability of the credits earned, mobility of staff and students across various higher learning institutions as well as compliance with the labor market demands.

The developed benchmarks are clearly articulated and user-friendly. Thus, it is our belief that they will serve as a guide and tool for the higher learning institutions in Rwanda wishing to design education-related programmes at the levels of Diploma, Advanced Diploma and Bachelor of Education.

Table 1: Definition of key terms

S/N	Terminology	Explanation
1	**Advanced diploma of education**	It refers to at least three-year undergraduate professional program that prepares students to become qualified teachers to teach secondary school up to Level 4 (general education or TVET) as defined by the Rwanda Qualifications Framework[1].
2	**Award**	Is the name of the highest qualification obtainable from the program (e.g., a Bachelor of Education with Honors in given subjects, Advanced Diploma of Education in given subjects, or Diploma of Education in given subjects).
3	**Bachelor of education**	It refers to at least four-year undergraduate professional program that prepares students to become qualified teachers to teach secondary school up to Level 5 (general education or TVET) as defined by the Rwanda Qualifications Framework.
4	**Benchmarks for education programmes**	Standards for a higher education programme to guide the development and implementation of education related programmes. This will serve as a guide for the development of education programmes and monitoring of their implementation.
6	**Credit**	Credit is a means of measuring and recognizing whether learning has been achieved.
	Credit weighting	Modules are valued in terms of credit. One credit is equated to 10 hours of notional students' learning efforts.
7	**Credit transfer**	A student may request to transfer credits obtained from other accredited academic institutions of higher education to the academic institution he/she is enrolling in, provided that such credits are not more than four years old, starting from the last year of enrollment. A student cannot transfer more than 50% of the Credits for the programme he/she is enrolling in. A transferring student is admitted after the examination of his/her application and transferrable credits are written on his/her transcripts.
8	**Diploma of education**	It refers to at least a two-year undergraduate professional program that prepares students to become qualified teachers to teach in lower secondary schools.
9	**Education modules**	Modules aiming at equipping learners with competences in educational sciences.
10	**General Modules**	Modules aim at equipping learners with basic skills in communication, ICT, entrepreneurship and citizenship.

[1] Official Gazette n° Special of 20/10/2021 retrieved from ttps://hec.gov.rw/fileadmin/user_upload/Ministerial_Orders_on_Standards__Curriculum___RQF__1_.pdf

11	**Module**	A module is a coherent and identifiable unit of learning and teaching with defined learning outcomes running over a specified period. Academic study shall be organized into modules based on a declared number of credits. A module should have 10, 15 or 20 credits representing 100, 150 and 200 hours of notional learning effort.
12	**Pre-requisite Module**	Modules required to be learnt and successfully passed by a student as a prior condition to be allowed to study the next module. If Module A is a prerequisite for Module B, the student must pass Module A before he/she may register for Module B.
13	**Programme leader**	Is an academic staff who leads an academic programme implementation. A programme has to be led by a qualified academic staff member in the field related to the programme and/ or one of the specified subjects mentioned in the programme title.
14	**Programme Title**	Is the name of an academic programme.
15	**Student mobility/ students exchange**	The student mobility/students exchange refers to the movement of students across the accredited academic institutions on the basis of a memorandum of understanding between the concerned academic institutions. A student may register for a module in one academic institution and study the same module in another accredited academic institution. The institution that offers the module sends the marks to the edutacademional institution in which the student is registered for record purposes.
16	**Subject modules**	Modules aiming at equipping learners with competences in the subjects of specialization.
17	**Teacher professional competences**	The required competences for teachers to effectively facilitate the teaching and learning process. These include knowledge of the subject, knowledge of pedagogy, knowledge of the learner, knowledge of ICT and its integration into education, knowledge education system.
18	**Teaching practicum**	It refers to familiarizing with the teaching profession. It includes 1) teaching practice and 2) school attachment. The teaching practice passes through three stages: a) Classroom observation whereby a student-teacher goes to the school to familiarize with the school environment, observe other teachers in class, (b) Trial lessons, whereby a student-teacher familiarizes him/herself with the teaching of the lessons he/she has prepared (C) practical lessons whereby a student-teacher puts into practice the teaching-related experience, skills and competences acquired at school. In the school attachment, a student-teacher spends a relatively long period of time at a school carrying out all the activities of a teacher.

1.0 INTRODUCTION

Rwanda acknowledges the importance of quality basic education for the development of human capital as the trigger for its socio-economic transformation. In the same way, target 4.1 of the Sustainable Development Goal four (SDG4) is to ensure that by 2030, all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes. In the pillar for human capital development of Rwanda's Vision 2050, universal access to high-quality education is a top priority.

The achievement of the basic education expected outcomes meeting global proficiency levels require qualified teachers to effectively lead teaching and learning, counseling students, mentoring students and teaching them how to use and apply competencies acquired in their lives.

Thus, higher education plays a key role in training qualified teachers able to lead and facilitate effectively the teaching-learning process and support students to acquire competencies required by the labor market and achieve global proficiency levels as a pillar for the development of human capital and catalyst for Rwanda social, economic and good governance transformation.

The Higher Education Council as the regulatory body has a mandate to ensure quality education in higher learning institutions, development of highly qualified and competent pre-service and in-service teachers dedicated to meet national, regional and international quality education standards which will be cascaded down to the quality education in primary and secondary education.

A baseline study conducted by Higher Education Council (HEC) in 2021 indicated that education-related programmes offered by the HLIs in Rwanda are not harmonized and benchmarked to the Inter-University Council for East Africa (IUCEA) benchmarks of the Bachelor of Education. In addition to this study, different changes happened and affected quality teaching and learning need to be addressed such as the consequences of COVID-19 to education system, the Law N° 010/2021 of 16/02/2021 determining the organization of education, teacher statute in Rwanda (2020) and the Ministerial order Nº001/MINEDUC/2021 of 20/10//2021 determining standards in education, etc.

These benchmarks for Education-related programmes provide standards in terms of expected national learning outcomes, indicative content and the guidelines for the development and implementation of education-related programmes by the higher learning institutions in Rwanda. Harmonized and benchmarked with the Inter-University Council for East Africa Bachelor of Education, these benchmarks will strengthen the competence of pre-service teachers and the mobility of students in Rwandan HLIs, East African HLIs and the global.

1.1 Background

The Presidential Order N° 081/01 of 28/08/2020 establishing the Higher Education Council (HEC) determines its mission, responsibilities, organization and functioning. The mission of HEC is to enhance quality of education, modes of providing it within higher learning institutions and make sure that graduates from such institutions are knowledgeable for the betterment of the Rwandan residents' welfare and development of Rwanda. In the pursuit to achieve this mission, the HEC works closely with HLIs to ensure that academic programmes development and delivery are commensurate with national, regional and international

standards. Thus, the HEC prepares and sets educational standards for the institutions of higher learning, approves curricula, and academic programs of institutions of higher learning.

As Rwanda strives for the achievement of sustainable development goals (gool4), there is high demand for training, recruitment and retention of qualified teachers for nursery, primary, secondary and tertiary levels of education. Indeed, it has been stressed that teachers are the most important input in the school system as the quality of them play an important role in the attainment of students' learning outcomes. It is in this regard that the Government of Rwanda has put much effort in the pre-service teachers' education as well as in-service teachers' professional development as a catalyst to quality education and improvement of learners' achievement of national and global expected learning outcomes.

A baseline study conducted by HEC in 2021 indicated that education-related programmes offered by the HLIs in Rwanda are not harmonized and benchmarked to the Inter-University Council for East Africa benchmarks of the Bachelor of Education. This might have affected the quality of pre-service teacher programme graduates and consequently affected the quality of learners' proficiency levels reported in LARS 2021 as very low (NESA, 2022).

Therefore, in the spirit of strengthening the quality of basic education, the Higher Education Council as a regulatory body developed harmonized and benchmarked education related programmes to serve higher learning institutions as standards for training teachers equipped with quality education comparable nationally, regionally and globally. The harmonized and benchmarked education-related programmes will also facilitate the mobility of students within Rwandan higher learning institutions and abroad. The Rwandan benchmarks for education related programmes have been benchmarked to the Inter-University Council for East Africa benchmarks of the Bachelor of Education. In addition, the Bologna system and other developed countries' education programmes have been consulted to ensure that the benchmarks meet the global orientation on pre-service teachers training programmes.

1.2 Objectives of the developed benchmarks

The objectives of these benchmarks are to:

- Serve as a guide and tool for the higher learning institutions in Rwanda designing the education-related programmes for the Diploma, Advanced Diploma and Bachelor of Education.
- Act as standards for the higher learning institutions wishing to develop education-related programmes, their implementation and assessment.
- Promote students' mobility within Rwandan higher learning institutions and abroad.
- Respond to Rwandan and regional labor market needs for qualified teachers.
- Facilitate the recognition of Diploma of Education, Advanced Diploma of Education and Bachelor of Education nationally, regionally and internationally.
- Guide the national, regional and international bodies in judging the quality of graduates from higher learning institutions in Rwanda.
- Enable the Higher Education Council as a regulatory body to assess the quality of the education-related programmes in Rwanda.

- Enable the Inter-University Council for East Africa as a regional body to assess the quality of education-related programmes in Rwanda.

1.3 Justification for the benchmarks

The development of the harmonized and benchmarks for education related programmes was motivated by different changes that happened in Rwanda, EAC and across the globe such as changes related to training, recruitment, management and development of teachers.

In Rwanda, the consequences of COVID-19 to education system, the Law N° 010/2021 of 16/02/2021 determining the organization of education, teachers statute in Rwanda (2020), the Ministerial order Nº001/MINEDUC/2021 of 20/10//2021 determining standards in education, the reported low performance of learners in primary and lower secondary schools in Learners' Achievement in Rwandan Schools (LARS, 2022) motivated the development of benchmarked education-related programmes as strategy of strengthening quality teachers for secondary education. The development of the benchmarked education-related programmes was also motivated by the finding of the baseline study conducted by the HEC in 2021 which indicated that education-related programmes offered by the HLIs in Rwanda are not harmonized and benchmarked to the Inter-University Council for East Africa benchmarks of the Bachelor of Education which might have affected the quality of pre-service teachers programmes graduates and consequently affected quality of learners' proficiency levels reported in LARS 2021 as very low (NESA, 2022).

Furthermore, these benchmarks respond to the needs for the harmonization of Rwanda benchmarks for education with the East African Community protocol on education through the Inter-University Council for East Africa.

The development of these harmonized and benchmarked education-related programmes will enable the Higher Education Council as a regulatory body to assess the quality of the delivered Diploma of Education, Advanced Diploma of Education and Bachelor of Education implemented by the higher learning institutions in Rwanda.

2.0 METHODOLOGY USED TO DEVELOP THE BENCHMARKS

The development of these benchmarks of education-related programmes used a desk review of the existing education-related programmes of higher learning institutions in Rwanda, the baseline study of education related programmes, the inter-university council for East Africa benchmarks of the bachelor's degree of education, the HEC quality assurance manuals as well as the laws and policies governing education in Rwanda.

The benchmarks used participative approaches through consultations and workshops that involved the higher education stakeholders, the higher learning institutions and experts in the field of education and subjects.

The first workshop conducted in Kayonza involved qualified lecturers of education modules from the higher learning institutions in Rwanda and conducted a situational analysis of education-related programmes offered in Rwandan HLIs focusing on the identification of their similarities and differences. First, the analysis concluded on the lack of harmony between education-related programmes offered in HLIs in Rwanda. Second, all education-related programme in Rwanda were not benchmarked to regional and international benchmarks. The participants developed a framework for the development of benchmarks and harmonization of education-related programmes.

The second workshop conducted in Muhanga involved education and subject experts who worked together to develop the draft benchmarks for education-related programmes for the training of pre-service teachers.

The third workshop conducted in Musanze involved education and subject experts from higher learning institutions who developed the second draft of benchmarked and harmonized education-related programmes. A draft guideline manual was also developed to support the understanding and the implementation of the benchmarks by the higher learning institutions and stakeholders.

The fourth phase involving education experts was conducted in April 2023 in Muhanga and was concerned with proofreading, cleaning and finalization of the benchmarked education-related modules across the Diploma of Education, Advanced Diploma of Education, and Bachelor of Education programmes.

The fifth phase involving education and subject experts was conducted in May 2023 in Musanze and was concerned with the development of general modules, proofreading, cleaning and finalization of subject-related modules, learning outcomes and contents across the Diploma of Education, Advanced Diploma of Education, and Bachelor of Education programmes.

The validation workshop was conducted in June 2023 and involved higher learning institutions in Rwanda, and the higher education development partners. The workshop's discussions focused on the learning outcomes and the indicative content of the benchmarks for each of the education-related programmes: Diploma of Education, Advanced Diploma of Education, and Bachelor of Education.

The sixth and last phase involving education and subject experts was conducted in September 2023 in Musanze to incorporate the inputs from the validation workshop held in June 2023 in Kigali.

The education-related programmes benchmarks were approved by the Senior Management of the Higher Education Council.

The use of the Benchmarks

The developed benchmarks provide standards to guide the higher learning institutions for the development and implementation of education-related programmes in Rwanda with focus on the level descriptors as stipulated by the National Qualification Framework and the indicative content for each benchmarked programme.

The structure of education-related programmes was developed based on the National Qualification Framework for Rwanda, and shall be implemented based on this qualification framework as follow:

- Bachelor of Education (Level 8, 530 credits)
- Advanced Diploma of Education (Level 7, 365 credits)
- Diploma of Education (Level 6, 280 credits)

Indeed, the education-related programme benchmarks are needed to guarantee:

- Comparable quality levels of the graduates;

- Comparable chances for the graduates in the labor market;
- Programme relevance to the requirements of the labor market;
- Increased national and international students and Lecturers' mobility.

The designed benchmarks and harmonized programmes should be used as a guide in designing or redesigning of Diploma, Advanced Diploma and or Bachelor of education programmes in Rwandan higher learning institutions. Therefore, any development, review or redesign of an education-related programme should consider these benchmarks for compliance with standards and programmes accreditation.

PART I

BENCHMARKS FOR BACHELOR OF EDUCATION

PART I: BENCHMARKS FOR BACHELOR OF EDUCATION

1.1 Introduction

The development of the benchmarks for a Bachelor of Education based on the National Qualification Framework (Level 8) and describes the learning outcomes and indicative content benchmarks to guide the higher learning institutions to design or redesign a Bachelor of education related programmes. This Bachelor of education was benchmarked to the Inter-University Council Benchmarks of the Bachelor of Education approved and advised for the East African countries as standards for a design and redesign of a Bachelor of Education to facilitate the mobility of both Lecturers and students.

1.2 Aims and Rationale for the Programme of Bachelor of Education

The Bachelor of Education aims at training Bachelor of education graduates to be able to apply knowledge, skills and understanding in a wide and unpredictable variety of contexts with substantial personal responsibility for the work of others and responsibility for the allocation of resources, policy, planning, execution and evaluation (IUCEA, 2017). Furthermore, graduates in Bachelor of education should be able to understand learners, develop learners' potentials, facilitate effective teaching & learning process, counsel students, evaluate students' learning, participate in curriculum development, and assume leadership responsibilities in the education sector.

The benchmarked Bachelor of education programme is designed to address the concerns of different stakeholders about the linkage between the existing programmes and the needs of the labor market. In this perspective, these benchmarks for the Bachelor of education respond to these concerns of stakeholders, studies and institutional review reports which required an innovative solution to address the issue of teacher quality in Rwandan schools.

1.3 Objectives of the Programme of Bachelor of Education

The Bachelor of education programme benchmarks objectives are to enable and equip learners with:

i) Knowledge and understanding in key concepts, principles, and theories in education;

ii) Applied knowledge, understanding and practice of effective leading teaching, learning, assessment, class and school management;

iii) Generic cognitive skills enabling learners to carry out analysis of complex education tasks and break them down into logical stages;

iv) Communication, ICT and numeracy skills enabling learners to apply technological and numerical tools for analysis and modeling different types of solutions in education and communicate the results effectively to parents, education stakeholders and partners;

v) Autonomy, responsibility and working with others and reflect on learner's own learning needs and take responsibility for gaining the necessary knowledge and skills for professionalism in education;

vi) Knowledge and skills to identify and handle learners with special needs;

vii) Professional knowledge, skills and attitudes in the area of education.

1.4 The Learning Outcomes for the Programme of Bachelor of Education

The purpose of the learning outcomes is to describe clearly what the learners should be able to demonstrate by the end of the programme or a module. Learning outcomes are statements of the knowledge, skills and attitude that a learner is able to demonstrate upon completion of a programme or a module.

The HLIs will be required to compare the existing learning outcomes of their accredited education-related programmes with these benchmarks and see what is missing or what should be redesigned or reformulated.

Based on the Ministerial order Nº001/MINEDUC/2021 of 20/10//2021 determining standards in education, the Higher Education Council programme development framework and the Bloom's Taxonomy learning outcomes are divided into the following:

- Knowledge and understanding:
- Applied knowledge, understanding and practice
- Generic cognitive skills
- Communication, ICT and numeracy skills
- Autonomy, responsibility and working with others

Thus, the following learning outcomes have been formulated to be used as benchmarks for a Bachelor of education.

Table 2: Expected Learning Outcomes for Bachelor of Education

Knowledge and understanding	The graduate should be able to demonstrate systematic knowledge and understanding of: i) The advanced principles and theories of education and practice of education; ii) The concepts of diversity and inclusiveness in education; iii) The effective approaches and methods for quality teaching, learning and assessment; iv) The code of conduct for professional teachers; v) The current issues influencing quality basic education at national, regional and international levels; vi) Research methods in education.
Applied knowledge, understanding and practice	The graduate should be able to: i) Apply a guided range of principles, techniques, and methods in teaching, learning and assessment; ii) Use research methodologies in educational research projects; iii) Implement teaching and learning principles in specialized subject areas; iv) Apply different forms of assessment to measure students' learning and provide constructive feedback; v) Create inclusive education and classroom management strategies for effective student learning; vi) Make use of educational research evidence to solve problems related to education.

Generic Cognitive Skills	The graduate should be able to: i) Critically analyze complex and professional level problems in education; ii) Address professional-level problems in both familiar and unfamiliar scenarios related to teaching, learning, and assessment; iii) Evaluate education at national, regional, and international levels using limited and/or diverse data/information sources; iv) Apply published educational research in teaching practices; v) Demonstrate some originality and creativity in dealing with professional issues in education; vi) Offer professional level insights, interpretations and solutions to problems and issues in education.
Communication, ICT and numeracy skills	The graduate should be able to: i) Present academic, professional or occupational ideas, problems and solutions in a variety of formats to both education specialist and non-specialist audiences; ii) Apply technological and numerical tools for analyzing and modeling different types of solutions in education; iii) Apply in a self-critical manner, learning strategies to effectively address his/her professional and ongoing learning needs in education; iv) Communicate effectively with learners and a wide range of educational stakeholders; v) Integrate applied technologies in teaching and learning to enhance students' learning; vi) Disseminate educational research findings to solve education-related problems; vii) Evaluate societal and organizational purposes and structures of educational systems.
Autonomy, responsibility and working with others	The graduate should be able: i) Take personal responsibility for decision-making in matters related education; ii) Act autonomously in professional activities in education; iii) Work with others to bring about change, development and/or new thinking in education; iv) Reflect on own learning needs for gaining the necessary knowledge and skills in education; v) Lead effectively teaching and learning activities; vi) Work collaboratively with colleagues and peers to challenge practice and suggest improvements for continuing professional development.

1.5 Translating learning outcomes into the programme

The Bachelor of Education qualification consists of 530 credits and is available to be studied daytime and the programme duration is 4 years which is equal to eight semesters. However, a current teacher needing to upgrade his/her education level/ or become qualified in the field of teacher education can be admitted in Holiday (School-Based) mode or distance learning. One

additional year will be added to the duration of the programme for a student who enrolls in a Holiday (School-Based) mode and distance learning. Only in-service teachers are eligible to a Holiday (School-Based) and distance learning modes.

In the process of developing a Bachelor of Education programme, the higher learning institution (s) should consider the following structure as benchmarks for the structure of the programme.

Table 3: Programme structure: Bachelor of Education

Year	Semester	Code	Module	Credits
One	1		Philosophy, History and Sociology of Education	**10**
			Human Developmental Psychology	**10**
			Subject 1	**15**
			Subject 2	**15**
			General English	**10**
			Introduction to Information and Communication Technology	**10**
	Sub-Total Number of Credits per Semester One			**70**
	2		Theories and practices of teaching and learning	10
			Educational Psychology	10
			Teaching Practice	5
			Subject 1	20
			Subject 2	20
			Citizenship and Transformative Education	10
	Sub-Total Number of Credit per Semester Two			**75**
	Total Number of Credit per Year One			**145**
	1		Guidance, Counseling and Inclusive Education	10
			Curriculum theory and development	10
			Subject 1	20
			Subject 2	20
			English for Specific Purposes	10
	Sub- Total Number of Credit per Semester One			**70**

Two	**2**		Measurement and evaluation in Education	10
			Professional Ethics for Teachers	10
			School attachment 1	5
			Subject 1	20
			Subject 2	20
			Entrepreneurship for Educators	10
	Sub- Total Number of Credit per Semester two			**75**
	Total Number of Credit per Year Two			**145**
Three	**1**		Subject Specific teaching Methods (Subject 1 & 2)	20
			Educational Technology	10
			Subject 1	20
			Subject 2	20
	Sub-Total Number of Credits per Semester One			**70**
	2		Research Methods in Education	10
			Educational Leadership and Management	10
			School Attachment 2	10
			Subject 1	15
			Subject 2	20
	Sub-Total Number of Credits per Semester Two			**65**
	Total Number of Credits per Year Three			**135**
Four	**1**		Education Planning and Economics of Education	10
			Comparative Education	10
			Subject 1	30
			Subject 2	25
			sub-Total Number of Credits per Semester One	**75**
	2		School Attachment III	20

			Educational Research Project	10
	Sub-Total Number of Credits per Semester Two			**30**
	Total Number of Credits per Year Four			**105**
	Programme Total Number of Credits			**530**

1.6 Programme Description for Bachelor of Education

The learning outcomes for the Bachelor of Education have been translated into modules that are described below. The Bachelor of Education is structured into education- related modules and subject-related modules. For each module, indicative content and learning outcomes are described. These indicative contents and learning outcomes are benchmarks to serve as a guide for the higher learning institutions to design, review and redesign their education-related programmes. A higher learning institution applying for an accreditation of a Bachelor of Education in an education-related programme should ensure the submitted programme complies with the above programme structure, related indicative content and learning outcomes.

1.7 Education modules

Module 1: Philosophy, History and Sociology of Education

Indicative content

The philosophy, History and Sociology of Education module introduces the philosophical, historical and sociological basis of educational theory and their relation to the evolution of teaching careers. It creates the students' awareness of possibilities and limitations offered by a variety of philosophical schools, paradigms and ideas while conceptualizing education issues and problems. It also acquaints the student with the relationship between the school as a social institution and the society. In addition, it highlights education development from ancient times to the period of reformation and education in modern times. It discusses differences in education systems and policies in order to establish the basis for justifying the current changes in Education. It outlines the highlights of the historical accounts of Education from antiquities (Aden, Greek, and Roman Societies) to the present Educational System.

Learning outcomes

By the end of the module, students should be able to:

i) Describe fundamental concepts in sociology and philosophy and their relevance to the field of education;

ii) Explain the evolution of education from medieval times to the post-colonial period;

iii) Discuss the influences of family, school, neighborhood, and national characteristics on education;

iv) Analyze the sociological, historical and philosophical foundations of education before drawing and defending conclusions;

v) Justify the sociological, philosophical assumptions and reasons behind certain educational policies and issues;

vi) Critically assess possible policy solutions to educational issues at multiple levels of analysis.

Module 2: Human Developmental Psychology

Indicative content

The module of Human Developmental Psychology equips students with deep knowledge and understanding of psychological human growth and development from conception to death through pregnancy, birth, infancy, childhood, adolescence, and old age. It explains the concept of developmental psychology, principles, determinants, and theories of human growth and development. The module describes with concrete examples the human physical, cognitive, socio-emotional, personality and moral development at different stages of lifespan. Furthermore, it helps students to draw educational implications that are appropriate for every stage of human development.

Learning outcomes

By the end of the module, students should be able to:

i) Explain the concepts and principles of human growth and development;

ii) Discuss the nature/ nurture controversy in determining human growth and development;

iii) Discuss the developmental changes across the life span according to various theories of human growth and development;

iv) Analyze the physical, cognitive, socio-emotional, personality and moral aspects at different stages of human development;

v) Design appropriate learning strategies to address various challenges across the developmental stages.

Module 3: Theories and Practice of Teaching and Learning

Indicative content

This module is designed to develop learner's knowledge skills and attitudes in theories, approaches, methods and practice of teaching and learning. It provides learners with concepts, educational learning theories with focus on contemporary theories and modern practices of learning, methods from facilitating teaching, learning and problem-based learning to the role of the teacher. It also provides knowledge and skills on designing lesson plans, schemes of work and their use to teach lessons in competence-based curriculum. Learners will acquire understanding of the techniques that can be used in different situations and will enable learners to develop skills on effective teaching practice, how to prepare and deliver effectively a competence-based curriculum lessons in Rwandan frameworks.

Learning outcomes

By the end of the module students should be able to:

i) Discuss contemporary perspectives on educational learning theories;

ii) Explain the different methods and practices appropriate for teaching, learning and lifelong learning;

iii) Assess the lesson plans to ensure they effectively prepare learners to achieve the expected competencies;

iv) Design competence-based lesson plans using Rwandan frameworks.

Module 4: Educational Psychology

Indicative content

The module of Education Psychology aims to equip students with knowledge and understanding of the link between psychology and teaching and learning. It focuses on the study of human learning. Specifically, the module deals with the meaning and significance of educational psychology, its scope and functions, nature and types of learning, theories of learning and their application in classroom settings, the role of motivation in learning, cognitive and behavioral perspectives to learning, approaches to teaching and learning, the teacher personality and the students' learning, self-regulation and self-concept and their role in learning, and classroom management.

Learning outcomes

By the end of this module students will be able to:

i) Explain the concept and scope of educational psychology to illustrate the link between psychology and the processes of teaching and learning;

ii) Apply the theories of learning in classroom contexts;

iii) Assess the relationship between teacher personality and student learning in an educational setting;

iv) Assess the effect of learner's self-regulation and self-concept on his/her learning;

v) Evaluate different teaching and learning strategies for diverse learners;

vi) Develop various ways of managing classroom to enhance effective teaching and learning.

Module 5: Teaching Practice

Indicative content

This module is designed to enable student teachers to get an overview of what happens in a school setting. The module will introduce students to the school environment. Through this module students will visit one of the schools surrounding their campus whereby the school leaders will help them to tour the school environment and meet experienced teachers who will share with them experiences, benefits and challenges associated with the teaching profession. They will also have the opportunity to observe at least one lesson in their subject of specialization.

Learning outcomes

By the end of this module, students should be able to:

i) Identify the elements of a school environment based on what was observed at the hosting school;

ii) Identify the benefits and challenges associated with the teaching profession;

iii) Use the teaching practice experience to reflect on what it means to be a professional teacher.

Module 6: Guidance, Counseling and Inclusive Education

Indicative content

The Guidance, Counseling and Inclusive Education module is developed to introduce students to the concepts, aims, need, scope, principles, theories and good practices that govern the process of guidance, counseling and inclusiveness in education. This module also introduces the student to the terms such as disability, disorder, exceptionality handicap, categories of learners with disability, conducive environment for learners with disabilities; hearing impairments, visual impairment; speech and language disorder, autistic spectrum disorders; physical disabilities such as cerebral palsy; causes of disabilities, characteristics of learners with disabilities, myths associated with disability and national policies on special needs education.

This module introduces the student to the process of helping individuals discover and develop their educational, vocations, and psychological potentialities and hereby to achieve an optimal level of personal happiness and social usefulness.

Learning outcomes

By the end this module, students should be able to:

i) Differentiate between guidance, counseling and inclusive education based on examples of services provided to students in schools;

ii) Apply guidance principles, counseling theories, and counseling skills to address educational, career, personal, and socio-emotional problems among students at school;

iii) Develop inclusive education strategies to cater for the individual learning needs of all learners including those with disabilities and other special educational needs.

Module 7: Curriculum Theory and Development

Indicative content

This module is designed to develop learner's skills, knowledge and attitudes in the field of curriculum theory and development. It seeks to introduce learners with the concepts of curriculum, the importance of a curriculum, the theories and principles of curriculum design, factors that affect curriculum development, the steps and models of curriculum development, as well as implementation and evaluation steps of a curriculum.

Learning outcomes

By the end this module, students should be able to:

i) Explain the concepts, principles, theories and models of curriculum development;

ii) Utilize models of curriculum development to comprehend the curriculum at national, regional, and international levels;

iii) Investigate the strengths and weaknesses of national curricula based on the key curriculum development and implementation steps;

iv) Investigate the factors influencing curriculum development and implementation process at national and regional levels;

v) Conduct research on curriculum development within their own specialization.

Module 8: Measurement and Evaluation in Education

Indicative content

This module seeks to equip students with basic knowledge and skills that are relevant for assessing students' achievement (skills, knowledge and attitudes). It introduces the students to the concepts of measurement, testing, assessment and evaluation in education. It also presents the characteristics, types of a test, validity and reliability of a test, test item analysis, construction of test using table of specification, test scoring and interpretation of test scores, and grading systems in education.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the basic concepts of measurement, testing, assessment and evaluation in education;

ii) Apply different types of assessment tools to measure students' learning achievement;

iii) Analyze learners' test results to improve learning;

iv) Appreciate the role of assessment in education;

v) Identify ethical issues in designing, administering and scoring tests.

Module 9: Professional Ethics for Teachers

Indicative content

Professional Ethics for Teachers module is designed to help the students recognize the spectrum of societal responsibilities within the teaching profession. It offers the student a foundational knowledge of the field of professional ethics as it relates to educational practice. It fosters an awareness of education ethical dilemmas and provides students with the tools to create methods of resolution. It is intended to acquaint the students with the content of the Code of Ethics for teachers, process of ethical decision making and hence to contribute to the overall professional development of the teacher. Students are exposed to a broad understanding of the ethical principles, concepts and issues that concern the practice of education.

Learning outcomes

By the end of this module, students should be able to:

i) Identify ethical principles and values that guide professional conduct for teachers;

ii) Identify ethical and legal issues that may arise in a variety of educational contexts and practices;

iii) Appreciate the relevance of ethical and legal principles and values in relation to teaching profession;

iv) Address the challenges involved in implementing the professional, ethical requirements and legal provisions in diverse educational environments.

Module 10: School Attachment I

Indicative content

This module is designed to enable student teachers to job-shadow an experienced teacher preparing, delivering and assessing lessons in their subjects of specialization. They will also job-shadow other administrative staff in order to gain school life experience. To this end, this module will enable student teachers to be initiated by experienced professionals in real-life situations so as to get prepared for their student-teaching. Through this module, student teachers will also conduct trial lessons to complete experiences gained in microteaching sessions conducted in classrooms while studying modules related to teaching methods.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the connection between a trial lesson and micro-teaching lessons in teaching practice;

ii) Apply what they learned from experienced teachers during job-shadowing to real-life situations in the school;

iii) Collaborate with the school community to apply different education theories in teaching and learning process;

iv) Appreciate the role of school attachment as a workplace learning experience;

v) Use the school attachment experience to reflect on what it means to be a professional teacher.

Module 11: Educational Technology

Indicative content

The module introduces the learners to the concept of educational technology, types of educational technologies, interrelationship between learning theories and educational technologies, benefits and criticisms of educational technology, ICT integration in the management of educational systems, computer aided instruction, Audio-visual/multimedia systems in education, e-learning, instructional media, Open Educational Resources, use of learning management platforms such as Moodle. The module also equips students with

competences to design and implement inclusive digital materials and resources, develop digital content, and develop e-portfolio.

Learning outcomes

By the end of this module, the students should be able to:

i) Describe the concept of educational technology as applied in the field of education;
ii) Use different technologies to facilitate teaching and learning process;
iii) Use ICT in the management of the education system;
iv) Use Open Education Resources to enhance students' learning;
v) Design an inclusive technology-enabled learning environment to facilitate student learning.

Module 12: Research Methods in Education

Indicative content

The module of Research Methods in education introduces students to essential concepts and skills in educational research and practice. The module is designed to equip students with knowledge, skills to design and execute qualitative and quantitative research in education. It will introduce students to the concept of research, classification of research, characteristics and importance of scientific research, the process of conducting research, research problem (identification, and statement of a problem), research objectives, questions and hypothesis, literature review, research designs and approaches, validity and reliability in research, population and sampling techniques, analysis and interpretation of data, and research ethics, writing research proposal and report.

Learning outcomes

By the end of this module, students should be able to:

i) Explain different concepts used in educational research;
ii) Describe the characteristics and process of educational research;
iii) Identify a researchable problem within the field of education;
iv) Conduct literature review to gain a deep understanding of the problem;
v) Select a representative sample from a specified population;
vi) Develop different data collection instruments appropriate for the study;
vii) Respect ethical norms related to educational research;
viii) Utilize both quantitative and qualitative approaches to analyze data in educational research.
viii) Write a quality report.

Module 13: Education Leadership and Management

Indicative content

This module addresses key themes in educational leadership, management and administration and how they relate to education. It tackles the topics such as: Overview of school leadership, management and administration, theories of leadership, management, and administration, leadership styles and models, professional standards for effective school leadership in Rwanda, group dynamics, leading change, human resources management, physical resources, financial management, knowledge and time management.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of educational leadership, management, administration;

ii) Effectively manage changes to enhance students' learning;

iii) Apply different leadership models and styles to effectively manage human resources in the school setting;

iv) Set the strategic direction for the school;

v) Collaborate with different stakeholders to effectively lead the school.

Module 14: School attachment II

Indicative content

This module is designed to enable student teachers to apply the theories acquired in the classroom into the school real life situation. The module also helps student-teachers to understand the teaching profession, its challenges and how they are addressed so as to get the school life experience. This module covers content such as: concept of school attachment, roles and responsibilities of stakeholders in school attachment, lesson preparation, delivery and assessment, use of data and record keeping to track students' progress, collaboration with parents and the wider community for improvement of students' learning outcomes.

Learning Outcomes

By the end of this module, students should be able to:

i) Discuss the role of school attachment in teacher education;

ii) Apply principles and theories acquired in classroom into the school real-life context;

iii) Design a lesson plan related to their area of specialization using the required template;

iv) Demonstrate how to deliver a lesson within a 40-minute timeframe;

v) Use the school attachment experience to reflect on what it means to be a teacher;

vi) Collaborate with different stakeholders to enhance students' learning achievement.

Module 15: Education Planning and Economics of Education

Indicative contents

This module was designed to equip students with required competences in educational planning and economics of education. It enables students to understand different concepts used in planning and economics of education and their application in the educational context. The module covers topics such as: conceptualization of educational planning, educational planning process, approaches to education planning (social demand approach, manpower requirements approach, cost-benefit analysis approach, cost-effectiveness approach, labour market analysis approach, tracer-studies, and strategic planning approach), statistics for educational planning, school improvement planning, school mapping, monitoring and evaluation of educational plans and programmes. It will also conceptualize economics of education, dichotomization of education as both investment and consumption, theory of human capital, interrelationship between education and economic growth and development, demand for and supply of education, analysis of educational costs and benefits, equity and efficiency of education, financing education (mobilization of funds, expenditures, accounting and auditing school's funds, etc.).

Learning outcomes

By the end of this module, students should be able to:

i) Explain the different concepts related to educational planning and economics of education;

ii) Use data collected from various sources for improvement of teaching and learning activities;

iii) Develop school improvement plan to improve students' learning outcomes;

iv) Apply economic principles to make educational decisions;

v) Critically analyze individual and social benefits that accrue from investment in education;

vi) Conduct school mapping to effectively and efficiently manage educational resources;

vii) Appreciate the role of educational planning and economics of education in the management of education systems.

Module 16: Comparative Education

Indicative content

This module discusses the global trends and issues influencing the focus, structure, organization and practice of education systems at international, regional and local levels. It highlights the comparative approaches used in education and provides a survey of schooling practices in various educational systems around the world in comparative perspective.

Learning outcomes

By the end of module, students should be able to:

i) Explain the concept of comparative education and its relevance to educational setting and trend;

ii) Analyze educational practices in different cultures and societies;

iii) Compare the Rwandan education system to other systems worldwide based on educational practices and challenges;

iv) Propose strategies for overcoming the challenges and problems of education at national, regional and global levels.

Module 17: School attachment III

Indicative content

This module is designed to enable student teachers to familiarize themselves with the school life experience. It will enable them to transfer their academic knowledge, practical skills, attitudes and values to teaching and learning prior to their entry into the teaching profession. The module will also enable students to deepen their understanding of the relevance and application of the theories acquired in the classroom into the real-life situation so as to address the challenges faced in teaching and learning process.

Learning outcomes

By the end of this module, students should be able to:

i) Use different theories and principles acquired throughout their training programs to plan, deliver and assess a lesson in their subjects of specialization;

ii) Reflect on their school attachment experiences for their professional development;

iii) Discuss best educational practices with various stakeholders to enhance students' learning achievement.

Module 18: Educational Research Project

Indicative content

The module aims at equipping student-teachers with knowledge and skills to get dependable solutions to educational problems based on research-based evidence. It is designed to help students apply different theories and principles applied through their theoretical modules in order to address educational problems. To this end, it enables students to identify a researchable problem in the field of education, formulate research topics, conduct the review of the related literature, collect and analyze data so as to make conclusions and recommendations to address the identified problem. Finally, the module enables students to disseminate their research findings through presentations or publications.

Learning Outcomes

By the end of this module, the student should be able to:

i) Explain key concepts related to research problem and research process;

ii) Identify a researchable problem in education;

iii) Conduct a thorough literature review to gather background information about the identified problem;

iv) Formulate SMART research objectives that address the identified research problem;

v) Use a variety of research methods and techniques to conduct valid educational research;

vi) Respect ethical norms while conducting educational research;

vii) Appreciate the role of research in solving educational problems.

1.8 Subject specific teaching methods modules

Module 1: Physics teaching methods

Indicative Content

This module underpins the theory and practice of teaching Physics and aims at training effective secondary school teachers of physics. It explores the current context of the competence-based curriculum with specific focus on Physics subject at secondary school level. Different themes include the Nature of Physics, Innovative instructional approaches of teaching physics, Resources in teaching Physics, Assessment in teaching physics and Microteaching. A particular emphasis will be put on the integration of new technologies in teaching Physics to enable the prospective physics teacher to organize, manage and run online physics lessons as well as virtual laboratories.

Learning outcomes

By the end of the module, students should be able to:

i) Critically analyze the current secondary school physics competence-based curriculum;

ii) Acquaint with all pedagogical documents relevant to teaching and learning physics;

iii) Apply innovative instructional teaching methods such as inquiry-based teaching; project-based learning in physics teaching and learning;

iv) Use appropriate technologies in teaching and learning physics;

v) Apply assessment techniques in teaching and learning physics;

vi) Design a physics micro-lesson plan for effective lesson delivery;

vii) Familiarize with physics laboratory management;

viii) Use information technology in teaching and learning Physics.

Module 2: Mathematics Teaching Methods

Indicative content

An overview of mathematics; historical and philosophical basis of mathematics; nature of mathematics and its relation to teaching; teachers conception of mathematics instructional practice; goals and objectives of teaching mathematics in Rwanda; mathematics learning instructional theories; eleven information processing theory and constructivism; multiple intelligence and learning styles; analysis of Mathematics competence-based curriculum

(CBC) in Rwanda secondary schools; mathematics content and practices; algebra and geometry processes; measurement and probability; data analysis; Mathematical processes; problem solving in mathematics teaching; techniques of teaching problem solving; resources in teaching mathematics; schemes of work and lesson plan development, 5Es model of instruction; classroom observation and micro-teaching; assessment in mathematics teaching; issues in teaching and learning mathematics as well as integrating technology tools.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the nature and philosophy of mathematics education;

ii) Explore a guided range of principles, techniques, practices, standards and methods associated with teaching and learning mathematics;

iii) Explain principles of mathematics competence-based curriculum (CBC) in Rwanda secondary school;

iv) Use effectively published research related to mathematics education for new teaching and learning styles;

v) Use mathematics instructional material with respect to a given topic in the mathematics syllabus;

vi) Analyze different modes of assessing mathematics with respect to assembling instructional and student performance;

vii) Use the information technology tools in teaching and learning mathematics;

Module 3: Computer Science Teaching Methods

Indicative content

The module aims to help students demonstrate flexible and interactive teaching styles in computer science by giving them the necessary knowledge and skills for computer science teaching methods. It focuses on the foundation of teaching computer science, the computer science curriculum of secondary schools in Rwanda, the 5Es instructional model, and aspects of computer teaching and learning, including interactive learning, questioning, Inquiry-based, Raising Questions, simulations, animations and videos, resources for teaching computer science, assessment of computer science teaching and learning at secondary schools, microteaching.

Learning Outcomes

By the end of this module, students should be able to:

i) Differentiate various teaching methods in computer science;

ii) Use different learning resources and practical activities to improve the teaching of computer science;

iii) Apply various teaching methods to improve the teaching and learning of computer science;

iv) Use a scheme of work, a lesson plan, evaluation of learning, and microteaching in computer science teaching;

v) Develop lesson plans and assessment tools in computer science teaching;

vi) Use the information technology tools in computer science teaching and learning;

vii) Take personal responsibility for decision making about appropriate teaching methods through microteaching.

Module 4: Didactique du français langue étrangère

Contenu indicatif

L'objectif général de ce module est de permettre à l'apprenant d'avoir des connaissances et des compétences, des attitudes et valeurs pour mettre en pratique le curriculum de français au Tronc Commun dans le cadre du CBC (competence-based curriculum) et du cycle supérieur du secondaire selon l'approche communicative et l'approche actionnelle. Il s'inscrit donc dans la perspective de l'enseignement/apprentissage du français langue étrangère, qui est la nouvelle option adoptée après la réforme de l'enseignement au Rwanda de 2009 faisant du français seulement une langue enseignée et non plus une langue d'enseignement.

Les objectifs d'apprentissage:

À la fin de ce module, les étudiants seront en mesure de démontrer leur connaissance et leur compréhension sur la didactique du français, notamment sur les points suivants :

i) Relever les différentes méthodologies d'apprentissage et enseignement du français à travers l'histoire;

ii) Expliquer l'importance de la langue française et de son enseignement au Rwanda;

iii) Expliquer les objectifs généraux de la classe de français;

iv) Décrire les pratiques et les techniques fondamentales d'apprentissage et enseignement du FLE selon le CBC.

v) Décrire l'organisation générale du contexte d'apprentissage;

vi) Expliquer l'importance du stage pédagogique.

Module 5: Ubugeni bwihariye bwo kwigisha Ikinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho igamije gutegura abanyeshuri bazigisha Ikinyarwanda mu buryo bunoze mu mashuri yisumbuye. Kugira ngo ibi bigerweho, iyi mbumbanyigisho iha abanyeshuri ubumenyi, ubumenyingiro n'ubucyesha ku byerekeranye n'amateka, amahame, amahange n'ubugeni byo kwigisha Ikinyarwanda hakurikijwe integanyanyigisho ishingiye ku bushobozi. Iyi mbumbanyigisho isobanura mu buryo bwimbitse ibijyanye n'uburyo, ubuhanga n'ubugeni bukoreshwa mu kwigisha inshoza zitandukanye z'ururimi, ibidanago n'imfashanyigisho zikenerwa ndetse n'uburyo zikoreshwa, uburyo amasuzumabumenyi y'ururimi ategurwa akanakoreshwa, ndetse n'ibibazo bigaragara mu myigire, imyigishirize n'amasuzuma by'Ikinyarwanda. Ikindi, iyi mbumbanyigisho iha abanyeshuri ubumenyingiro ku byerekeranye n'integanyanyigisho, ndetse gutegura no gutanga amasomo y'Ikinyarwanda.

Intego z'imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, abanyeshuri bazaba bashoboye :

i) Gusesengura amateka, intego n'akamaro ko kwigisha Ikinyarwanda mu Rwanda, mu karere, no ku isi hose;

ii) Gusobanura amahange akoreshwa mu kwiga no kwigisha ururimi nk'ururimi kavukire, ururimi rwa kabiri, n'ururimi rw'amahanga, n'uburyo ayo mahange ahuzwa no kwiga no kwigisha Ikinyarwanda;

iii) Kuvuga akamaro n'uburyo byo gukoresha ikoranabuhanga mu myigire n'imyigishirize by'Ikinyarwanda;

iv) Gusobanura amahame, uburyo, n'ubugeni bwihariye bwo kwigisha Ikinyarwanda mu ishuri;

v) Guhitamo imfashanyigisho n'ibindi byose bikenerwa mu kwigisha no gutanga amasuzumabumenyi ku banyeshuri biga ururimi rw'Ikinyarwanda;

vi) Gusobanura amahange y'iyigandimi n'ayo mu burezi akoreshwa mu mitegurire, imitunganyirize, n'imisuzumire y'imyigire n'imyigishirize by'Ikinyarwanda;

vii) Gutegura ibidanago bikoreshwa mu kwigisha hagendewe ku nteganyanyigisho ishingiye ku bushobozi.

Module 6: Biology Teaching Methods

Indicative content

This module aims to equip students with knowledge, skills, attitudes, and values to enable them to implement the Biology Competence Based Curriculum (CBC) at secondary school level. The module covers the history and nature of science, philosophical foundations of teaching and learning science, biology CBC and its implementation in Rwanda, methods for CBC implementation in biology, key concepts and aspects (Questioning, Raising Questions, discrepant event, practical work, concept cartoons, contextualisation of learning, use of simulations, animations and videos) in biology teaching and learning, 5Es instructional model in biology lesson planning and delivery, resources for effective learning and teaching biology, designing assessment tools and planning for biology teaching and learning. It also exposes prospective teachers with skills for teaching through micro-teaching and micro-feedback.

Learning outcomes

By the end of this module, student should be able to:

i) Explain the history and the nature of science biology included;

ii) Discuss the philosophical foundations of teaching and learning science biology included;

iii) Apply various teaching and learning concepts, principles, methods and aspects/techniques for biology teaching and learning;

iv) Use teaching and learning resources appropriate for biology lessons;

v) Apply 5Es instructional model lessons in microteaching sessions;

vi) Develop lesson plans and assessment tools for effective biology teaching and learning;

vii) Practice teaching through micro-teaching and micro-learning;

viii) Use the information technology tools in biology teaching and learning.

Module 7: English Language Teaching Methods

Indicative content

The module aims to help students gain knowledge on modern language teaching methods and techniques and how they can be applied while teaching English as a foreign language. It focuses on some essential IT tools used for teaching English, the use of audio-visual tools to teach English as well as the teaching of English grammar in context.

Learning outcomes

By the end of this module, students should be able to:

i) Describe current methodologies and strategies for teaching English as a foreign language;

ii) Use modern language teaching methods in English teaching and learning;

iii) Use technology to develop learners' proficiency in English as a foreign language;

iv) Identify the materials to use to teach English as a foreign language;

v) Adapt teaching methods to respond to the affective and cognitive needs of diverse learners of English;

vi) Design English lesson plans and related teaching materials to deliver effective English language lessons.

Module 8: History Teaching Methods

Indicative content

The module aims at equipping student teachers with competences to teach history in secondary schools. It introduces the students to essential qualities of an ideal history teacher. It also aims at familiarizing student-teachers with different theories of teaching and learning history, history curriculum and textbooks, use of history sources as a teaching resource, teaching sensitive and controversial topics, teaching large and disadvantaged classrooms and use of ICT in teaching history. The module details history lesson planning, preparation, delivery and assessment. Finally, microteaching aims at equipping the student teachers with teaching skills.

Learning outcomes

By the end of this module, students should be able to:

i) Identify the qualities of an ideal history teacher;

ii) Describe the strength and weaknesses of different sources to teach history;

iii) Discuss the opportunities and challenges of history curriculum in the context of a competence-based curriculum;

iv) Design history lesson plans in a creative manner for effective lesson delivery and assessment;

v) Use data to provide constructive feedback to students;

vi)Use ICT in history teaching and learning.

Module 9: Geography Teaching Methods

Indicative content

The module aims to equip student-teachers with knowledge, skills and values to teach geography in secondary schools. This refers to familiarizing a Geography student-teacher with the school and classroom real life experiences and the whole process of teaching and learning before taking on the full range of responsibilities of the professional teacher. The module presents the qualities of a Geography teacher, recalls the strategies of class motivation and management, introduces students to appropriate and specific teaching methods and techniques of Geography and their challenges, and finally details the ways of geography lesson planning, preparation, delivery, and assessment.

Learning outcomes

Upon successful completion of the training, students should be able to: Demonstrate skills and knowledge of teaching geography in secondary schools;

i) Identify appropriate methods and teaching aids to teach geography;

ii) Apply appropriate teaching and learning methods in lesson delivery for geography;

iii) Apply effective strategies of class management and motivation in geography learning situation;

iv) Use crosscutting issues appropriate for teaching geography;

v) Design a scheme of work and a lesson plan in a competence-based approach;

vi) Use educational technologies including ICT in geography teaching and learning.

Module 10: Economics Specific Teaching Methods

Indicative content

This module aims at allowing students to teach effectively and efficiently Economics at secondary school level; to provide students with a comprehensive, critical overview of the historical, theoretical and practical dimensions of Economics teaching. It presents concepts and approaches in a learner-centered pedagogical orientation, of appropriate methodologies in teaching Economics. The course will equip students with basic knowledge of economics education. The course spreads through areas like economics education in secondary school, scope of economics education, methods, and techniques of teaching economics. It will discuss the following items: Economics Education in Rwanda Secondary School, Planning the course, Evaluation strategies in economics, Qualities of a good and effective economics

teaching and classroom management, Preparation of economics syllabus and pitfalls of syllabus construction, analyzes the different techniques and methods of teaching economics, the teaching aids in economics, the classroom for economics and the teacher of economics.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the concept of economics education and the historical and philosophical bases of economics teaching;
ii) Identify the practical and theoretical problems faced in the teaching of economics;
iii) Describe the evolutions of teaching methods for economics;
iv) Discuss the approaches to the preparation of economics syllabus and the pitfalls of syllabus construction;
v) Apply appropriate theories in planning, organizing, and assessing economics teaching-learning process;
vi) Use the information technology tools in economics teaching and learning;
i) Present orally or in writing principles of teaching economics to any audience.

Module 11: Chemistry Teaching Methods

Indicative content

This module aims at equipping students with knowledge, skills, attitudes, and values to enable them to implement the chemistry competence-based curriculum (CBC) at secondary school level. The module covers the nature of science; development of chemistry concepts and procedures; basic principles and theories of teaching chemistry. It provides details on technological, pedagogical, and content knowledge (TPACK) and seeks to offer deep understanding of chemistry CBC and its implementation in Rwanda. The methodology and key aspects of chemistry teaching and learning are also developed. Furthermore, the module highlights resources for learning and teaching chemistry as well as planning for chemistry teaching and assessment. Lastly it emphasizes micro-teaching activities and practicum.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss theories of teaching and learning science and lesson plan models;
ii) Explain the general purpose of teaching chemistry in secondary school;
iii) Use appropriate teaching resources in chemistry class;
iv) Apply appropriate teaching methods in a chemistry lesson;
v) Use the information technology tools in chemistry teaching and learning;
vi) Design an appropriate chemistry lesson plan;
vii) Teach a micro-lesson and a real lesson in secondary schools;
viii) Develop own teaching resources to conduct chemistry experiments.

Module 12: Entrepreneurship Specific Teaching Methods

Indicative content

This module aims at providing students with an understanding of concepts and theories to teach effectively and efficiently Entrepreneurship at secondary school. It will provide students with a comprehensive practical dimensions of teaching Entrepreneurship including the whole process from lesson preparation, micro-teaching, delivery and evaluation,

It will focus on the rationale for the teaching and learning of Entrepreneurship, concepts, and theories in teaching Entrepreneurship; Entrepreneurship competency-based curriculum, various methods, techniques and teaching resources used in teaching Entrepreneurship. Elaboration of scheme of work, lesson plan as well as assessment and microteaching

Learning outcomes

By the end of the module, students should be able to:

i) Explain principles of competence-based curriculum for entrepreneurship;

ii) Apply teaching methods and strategies in entrepreneurship micro-teaching;

iii) Apply appropriate theories in planning, organizing, and assessing entrepreneurship teaching and learning activities;

iv) Use the information technology tools in entrepreneurship teaching and learning;

v) Develop teaching materials appropriate for entrepreneurship teaching and learning;

vi) Reflect on their awareness on self-employment as a career option.

Moduli 13: Mbinu za Ufundishaji wa Kiswahili

Ufafanuzi

Moduli hii inakusudiwa kuwawezesha wanafunzi kufundisha Kiswahili kwa ukamilifu katika shule za sekondari. Aidha, inawapatia wanafunzi mtazamo wa kina na wa kihakiki kuhusu mielekeo ya ufundishaji wa lugha kwa ujumla kihistoria, kinadharia na kivitendo. Hivyo, moduli hii inawasilisha dhana na mikabala ya mbinu mbalimbali mwafaka za ufundishaji wa Kiswahili katika mwelekeo wa kumfanya mwanafunzi kuwa kitovu cha ufundishaji na ujifunzaji.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua mbinu mbalimbali ufundishaji na ujifunzaji wa lugha ya pili;

ii) Kujadili dhana muhimu katika ufundishaji wa lugha ya Kiswahili: andalio la somo, pango kazi, nadharia za ujifunzaji, mkabala, mbinu, shajara ya darasa;

iii) Kutathimini mbinu mbalimbali za ufundishaji lugha ya pili kwa ujumla na Kiswahili kwa umahsusi;

iv)Kuandaa masomo tofauti muafaka ya ufundishaji wa stadi nne za lugha;

v) Kutumia nadharia, mikabala na mbinu za ufundishaji lugha ya Kiswahili kwa namna muafaka;

vi) Kuandaa kwa ufasaha somo la lugha na fasihi na tathimini yake;

vii) Kuandaa mpango kazi na andalio la somo kwa ufasaha;

viii) Kutumia zana za teknolojia ya habari kama nyenzo za kufundishia na kujifunzia Kiswahili.

Module 14: Teaching Methods in Early-Childhood Development

Indicative content

This module aims at equipping student teachers with knowledge, skills, attitudes, and values that enable them to teach effectively early childhood learners. The module focuses on the following topics: Theories underpinning early childhood learning, methods and approaches of teaching and learning pre-school learners; Integrated thematic approach to teaching and learning in ECD; Field trip to observe live lessons in some of the best pre-primary schools; Microteaching.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the theories underpinning early childhood learning;

ii) Apply appropriate approaches and methods in teaching early childhood learners;

iii) Deliver effectively early childhood instruction in integrated thematic approach;

iv) Conduct a micro-teaching lesson for early-childhood development;

v) Use the information technology tools in teaching and learning related to early-childhood development;

vi) Report orally and / or in writing on the lesson observation conducted in one of the best pre-schools and micro-teaching session.

1.9 Bachelor of Education - subjects

1.9.1 Physics modules

Brief description of the programme

The programme of Bachelor of Education with Physics subject is designed to produce professionally qualified physics teachers for Secondary school. It aims at equipping student teachers with competencies to handle physics practical activities as suggested by the national competence-based curriculum of secondary education. The programme also prepares student teachers to pursue further studies in the area of physics education or other related fields. It is a four years programme with 13 physics modules totaling 140 credits out of a total of 530 credits of the whole programme**.**

Learning Outcomes

By the end of the programme, students should be able to:

i) Establish the link between physics module contents and the school physics curriculum;

ii) Acquire the pedagogical content knowledge that is necessary for effective physics teaching;

iii) Create syllabi, lesson plans, and educational content that satisfy the physics secondary school curriculum requirements;

iv) Perform all experiments proposed in the physics syllabi.

Table 4: **Distribution of Physics modules**

S/N	Module	Year of study	Semester	Credits
1	Classical Mechanics	1	1	15
2	Properties of Matter and Thermodynamics	1	2	10
3	Oscillation and Waves	1	2	10
4	Mathematical and Computational Physics	2	1	10
5	Electromagnetism	2	1	10
6	Optics and Modern Physics	2	2	10
7	Analytical Mechanics and Special Relativity	2	2	10
8	Electrodynamics	3	1	10
9	Quantum Physics	3	1	10
10	Thermal and Statistical Physics	3	2	10
11	Crystalline Solids and Electronics	3	2	10

12	Atomic and Nuclear Physics	4	1	15
13	Environmental and Space Physics	4	1	10
Total				**140**

Module 1: Classical Mechanics

Indicative Content

The module of classical mechanics introduces students to ideas and mathematical techniques used in understanding the behavior of dynamical systems that obey Newton's Laws. It includes topics on vector analysis, physical quantities and measurement, kinematics and dynamics of a particle, dynamics of translation and rotation of a rigid body, conservation laws, gravitational fields and potentials, Kepler's laws of planetary motion and simple harmonic motion.

Learning outcomes

By the end of this module, students should be able to:

i) Analyze the world around them from a physics point of view with reference to fundamental concepts of mechanics;

ii) Apply classical mechanics to real situations in life;

iii) Appy classical mechanics equations to solving practical problems;

iv) Explain Kepler's laws of planetary motion;

v) Apply teaching and learning strategies related to classical mechanics.

Module 2: Properties of Matter and Thermodynamics

Indicative Content

The module of properties of matter and thermodynamics introduces students to basic concepts and principles of properties of matter and thermodynamics. It provides a working knowledge of elastic properties of matter, hydrostatics, and hydrodynamics. It also covers equations of state for an ideal gas, basic heat transfer, kinetic theory, and the laws of thermodynamics.

Learning outcomes

By the end of this module, students should be able to:

i) Describe structure and properties of matter;

ii) Describe basic concepts of Thermodynamics, the behavior of thermodynamics processes and heat transfer;

iii) Apply laws of kinetic theory of ideal to solving practical problems;

iv) Formulate the first law of thermodynamics for a closed systems to arrange the change in energy in the closed systems via heat and work transfer;

v) Calculate thermal efficiency and coefficient of performance for heat engine, refrigerators and heat pumps;

vi) Evaluate entropy changes in a wide range of processes and the reversibility or irreversibility of a process from such calculations;

vii) Apply teaching and learning strategies related to properties of matter and thermodynamics.

Module 3: Oscillation and Waves

Indicative Content

This module covers introductory concepts of simple harmonic motion and waves, drawing on and bringing together examples from different branches of physics including mechanics, optics, electronics, and electromagnetism. It combines the mathematical description, physical interpretation as well as experiments and their analysis of oscillations and wave phenomena to provide a well-balanced introduction to the important physical concepts that are required for further study in subsequent modules of a physics course.

Learning outcomes

By the end of this module, students should be able to:

i) Analyze simple systems undergoing simple harmonic motion to derive equations describing the motion and expressions for the oscillation frequency;

ii) Derive the wave equation for the case e.g. waves on a string;

iii) Analyze simple waveforms traveling along a medium, e.g. string;

iv) Undertake calculations of frequency shifts arising from Doppler effect;

v) Calculate interference and diffraction patterns arising from, e.g. multiple point sources of light and slits of finite width.

Module 4: Mathematical and Computational Physics

Indicative Content

This module is dedicated to mathematical and Computational methods for Physics. The module introduces fundamental theorems of vector analysis, curvilinear and orthogonal coordinates, Fourier series and Fourier transforms, second order differential equations, mathematical physics equations. The module will introduce Python and computer oriented numerical methods. Applications in physics will be emphasized.

Learning outcomes

By the end of this module, students should be able to:

i) Explain differential operators and fundamental theorems of vector analysis;

ii) Distinguish curvilinear and Orthogonal coordinates;

iii) Describe Fourier series and Fourier Transforms;

iv) Use mathematical physics equations by applying methods of solutions and applications;

v) Apply special functions in solving physical problems;

vi) Apply methods of separation of variables to solve mathematical physics equations;

vii) Solve physics problems using numerical methods in Python or other programming languages such as MATLAB.

Module 5: Electromagnetism

Indicative Content

This module introduces fundamental laws of electrostatic and electrodynamics field theory as well as the physical quantities of electromagnetic fields. It further provides the basis to the understanding of how Maxwell unified electricity, magnetism and optics into electromagnetic theory. It also covers the basic phenomena of electromagnetism, the mathematics of vector fields, Maxwell's four equations to describe all of electromagnetism, including the propagation of electromagnetic waves. Furthermore, the module provides an account of the electrical and magnetic properties of materials.

Learning outcomes

By the end of this module, students should be able to:

i) Write down Maxwell's equations in differential form;

ii) Demonstrate how Maxwell equations can be split into two twos for time-independent fields, two for electrostatics, two for magnetostatics;

iii) Derive Maxwell's first equation from Gauss' Flux Law of Electrostatics using Gauss' theorem;

iv) Use the material in EM I to solve problems in magnetostatics;

v) Calculate the motion of charged particles in magnetic fields;

vi) Relate the differential to the integral form of Ampere's Law using Stokes' theorem;

vii) Use Ampere's Law to calculate the magnetic field of a current-carrying straight wire and a solenoid;

viii) Relate the differential to the integral form of Faraday's Law using Stokes' theorem;

ix) Apply self-inductance to the properties of inductors in AC circuits.

Module 6: Optics and Modern Physics

Indicative Content

This module introduces modern optics beginning with a description of electromagnetic radiation and the use of Fourier techniques to describe optical systems. A central theme is a description of phase and coherence that enables a discussion of applications of modern optics including interference, diffraction and polarization, by introducing interferometers,

interference in multilayer films, diffraction gratings, holography, and confocal microscope. It also discusses the failure of classical physics, wave-particle duality and atomic models.

Learning outcomes

By the end of this module, students should be able to:

i) Describe qualitatively the Huygens-Fresnel principle and Kirchhoff diffraction theory;

ii) Describe qualitatively the diffraction pattern using Fourier techniques;

iii) Explain the principles of interferometers and diffraction grating;

iv) Explain the wave particle duality;

v) Determine interference – fringes;

vi) Determine diffraction patterns, resolving - power, and spectrums by diffraction gratings.

Module 7: Analytical Mechanics and Special Relativity

Indicative Content

This module introduces learners to how to describe physical systems using the methods of analytical mechanics. It also shows how the equations of motion can be obtained from a Lagrangian or a Hamiltonian, as well as how to make use of symmetries to solve problems. It also discusses concepts such as canonical transformations, the Hamilton-Jacobi equation and Poisson brackets, postulates of special relativity, relativistic kinematics, and dynamics.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Apply Lagrange's and Hamilton's equations to study physical systems;

ii) Use Hamilton-Jacobi equation to solve physical problems;

iii) Discuss the classical principle of relativity and the symmetry in basic laws of Newtonian mechanics;

iv) Discuss inadequacy of the classical principle of relativity and the need to develop a new theory;

v) Apply concepts of analytical mechanics and special relativity to a variety of physical problems.

Module 8: Electrodynamics

Indicative Content

This module deals with basic concepts and principles of electrodynamics. The module introduces the propagation of electromagnetic waves in conducting, isotropic and anisotropic dielectric media as well as in bounded media and also deals with potential formulation of electrodynamics.

Learning outcomes

By the end of this module, students should be able to:

i) Work with the vector potential and Lorentz invariant form of Maxwell's equations;

ii) Use Maxwell's equations to solve representative problems;

iii) Describe physics of EM radiation, scattering and the propagation of EM waves through free space and in waveguides;

iv) Solve Maxwell's equations to calculate the EM field from known source distributions.

Module 9: Quantum Physics

Indicative Content

This module discusses the principles of quantum mechanics, Schrödinger's equation and operator formulation of quantum mechanics, quantum Poisson's brackets, derivatives of operators with respect to time, equations of motion in quantum mechanics and laws of conservation.

Learning outcomes

By the end of this module, students should be able to:

i) Describe inadequacy of the laws of classical physics to explain atomic phenomena;

ii) Apply the principles of Quantum Mechanics to solve problems;

iii) Apply the technique of separation of variables to solve problems in more than one dimension;

iv) Solve time-dependent and time-independent Schrödinger equation for simple potentials;

v) Apply the variational method, time-independent perturbation theory and time-dependent perturbation theory to solve simple problems;

vi) Combine spin and angular momenta.

Module 10: Thermal and Statistical Physics

Indicative Content

The aim of this module is to provide students with a solid understanding of the fundamental laws of thermodynamics, kinetic theory and statistical physics. The module discusses the principles and most important applications of thermodynamics and statistical mechanics. It covers the overviews of laws of thermodynamics, principal representations of classical statistical mechanics, applications of classical statistics, quantum statistical theory of equilibrium states and applications of quantum statistics.

Learning outcomes

By the end of this module, students should be able to:

i) Apply physical laws and principles in Thermal and Statistical Physics to diverse areas of physics;

ii) Identify relevant principles and laws when dealing with problems in Thermal and Statistical Physics and to make approximations necessary to obtain solutions;

iii) Describe the statistical nature of concepts and laws in entropy, temperature, chemical potential, Free energies, partition functions;

iv) Solve problems in Thermal and Statistical Physics using appropriate mathematical tools;

v) Apply teaching and learning strategies related to Thermal and Statistical Physics.

Module 11: Crystalline Solid and Electronics

Indicative Content

The module introduces the basic knowledge required to understand, design and work with basic electronic circuits. It will discuss following topics such as semiconductors and rectification, bipolar junction transistor, metal-oxide semiconductor transistors (MOST), amplifier and feedback amplifier, operational amplifier, logic fundamentals, digital and analog signals, block diagram of telecommunication system.

Learning outcomes

By the end of this module, students should be able to:

i) Explain some basic concepts of semiconductor physics;

ii) Apply diode and transistor circuits;

iii) Explain the working principle of various amplifiers;

iv) Discuss the working principle of devices using digital or analog signals.

Module 12: Atomic and Nuclear Physics

Indicative Content

This module discusses the basic concepts, principles and applications of atomic, nuclear and particle physics. It provides a working knowledge of structure and spectra of atoms, X-ray spectra and lasers, and Zeeman effect. It also covers topics on nuclear structure and properties, nuclear radiations, and their interaction with matter but also elementary particles properties acceleration and detectors.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the structure of the atom, the constituents of the nucleus, and different types of radiation;

ii) Explain the interactions of radiation with matter and the physics of nuclear fission;

iii) Apply x–ray spectra and principle of lasers;

iv) Complete simple calculations using energy and mass relationships, atomic density, and radioactive decay;

v) Classify elementary particles based on their properties;

vi) Apply conservation laws;

vii) Apply teaching and learning strategies related to atomic and nuclear physics.

Module 13: Environment and Space Physics

Indicative Content

This module discusses the basic concepts of environmental physics. It also provides students with the basic concepts and principles of space physics and astrophysics. It includes fundamental principles of space and climate science physics, laws that govern formation, structure, evolution and emission of stars and galaxies.

Learning outcomes

By the end of this module, the students should be able to:

i) Identify environmental problems;

ii) Explain the role of critical density in determining the type of universe we live in, and its evolution;

iii) Describe the predictions of current theories concerning evolution of the early universe;

iv) Describe the basic functionalities of the optical/UV/IR telescope;

v) Apply teaching and learning strategies for environmental and space physics.

1.9.2 Mathematics modules

Brief description of the aims

The bachelor program in education with Mathematics subject aims to equip students with scientific and pedagogical competencies to teach mathematics in secondary schools, pursue further studies in mathematics education or any related field as well as be engaged in mathematics curriculum and materials development.

Learning Outcomes

By the end of the programme, students should be able to:

i) Explain mathematical concepts and their applications;

ii) Distinguish between areas of geometry, algebra, calculus, statistics, probability and complex functions;

iii) Critically analyze complex/ professional level problems and issues using mathematics principles;

iv) Communicate various concepts of mathematics effectively using examples and their physical/geometrical visualizations;

v) Appropriately interpret mathematical results aligned with real life problems;

vi) Make judgments where mathematical data/information is limited and/or comes from a range of sources;

vii) Use appropriate technological tools for specific mathematical applications;

viii) Apply in a self-critical manner, learning strategies to effectively address their professional and ongoing learning needs in mathematics.

Table 5: **Distribution of Mathematics modules**

S/N	Module	Year of study	Semester	Credits
1	Fundamentals of calculus	1	1	15
2	Descriptive statistics and probability	1	2	10
3	Abstract Algebra	1	2	10
4	Linear Algebra	2	1	10
5	Analytical Geometry	2	1	10
6	Multivariable calculus	2	2	10
7	Multilinear Algebra	2	2	10
8	Inferential Statistics	3	1	10
9	Complex Analysis	3	1	10
10	Differential equations	3	2	10
11	Functional Analysis	3	2	10
12	Numerical analysis and programming	4	1	15
13	Differential Geometry	4	1	10
Total				**140**

Module 1: Fundamentals of Calculus

Indicative content

The module of fundamentals of calculus introduces students to functions in one real variable through topology of IR and Cartesian plane, inequalities, relation, functions and graphs, series and sequences, limits and continuity of functions, polynomial, trigonometric, exponential, and logarithmic functions, derivative and applications, integrals and applications.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Explain key concepts of calculus;

ii) Apply principles of differentiation and integration of various functions in one real variable;

iii) Apply differentiation and integration in solving some problems encountered in other sciences;

iv) Analyze scientific problems to establish appropriate mathematical model;

v) Use appropriate information technological tools such as Geogebra software in producing graphs of numerical functions.

Module 2: Descriptive Statistics and Probability

Indicative content

This module of descriptive statistics and probability is designed to develop learner's knowledge, skills and attitudes in data collection, frequency distributions and their graphs; measures of central tendency; measures of variation; measures of position; bivariate distribution (scatter diagram, linear correlation, regression lines); combinatory analysis (counting techniques), probability of an event, Bayes theorem, random variables, and univariate distributions.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the concepts of descriptive statistics and probability;

ii) Interpret the computed statistical parameters;

iii) Interpret the established linear regression equation and correlation coefficient;

iv) Compute simple and conditional probability of events, and probability distributions of discrete and continuous random variables;

v) Apply descriptive statistics in organizing raw data;

vi) Use available software for statistics such as excel spreadsheet to analyze a set of data.

Module 3: Abstract Algebra

Indicative content

The module of Abstract Algebra enables students to review the set of real and complex numbers and deepen properties of integers, integers modulo n, algebraic structures: groups, rings, modules, and fields; homomorphisms and isomorphisms; group actions, centralizers, normalizers, stabilizers, and kernels; cosets and Lagrange's theorem; conjugacy; normal subgroups and quotient groups; the Sylow theorem and applications; representations of a finite group.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key concepts of algebraic structures from magma to the field;

ii) Differentiate between conjugacy, normal subgroups, and quotient groups;

iii) Explain group homomorphisms;

iv) Distinguish subgroups, subrings, and subfield;

v) Apply Lagrange's theorem to argue logically, clearly, and effectively in related situation;

vi) Apply different theorems of algebraic structures in solving daily life problems.

Module 4: Linear Algebra

Indicative content

The module introduces basic concepts of linear algebra, computational techniques, and applications of linear algebra. Topics include systems of linear equations, matrices, determinants, eigenvalues and eigenvectors, vector space and linear transformations. This module also aims to form a cohesive learning environment where mathematical research of linear algebra, matrix theory and others which are strongly related are brought together and viewed in terms of the real-world applications in which they emerge, such as computational engineering and sciences, and increasingly in social sciences and economics.

Learning outcomes

By the end of this module, students should be able to:

i) Describe concepts related to Euclidean and unitary spaces, vector spaces and their properties and linear transformations;

ii) Apply matrix determinants in solving linear equation systems;

iii) Solve real-world problems encountered in computational engineering and science;

iv) Develop a simple computer programme in solving linear systems;

v) Establish the link between linear algebra and geometry.

Module 5: Analytical Geometry

Indicative content

The module covers notions of coordinates; vectors; scalar product; dot product; cross product; box product; notion of length, norms, area and volumes; plan analytical geometry: point, straight line, circle and conics; solids or 3D: point, straight line, plan, and surfaces. Shapes: triangle, quadrilaterals, polygons, and circles; Solids: cubes, parallelepipeds, pyramids, prism, tetrahedrons; cones, cylinders, computation of length, area, and volume; computation of angles using trigonometry; manipulation of shapes and solids using local materials applied to everyday life (architecture and arts).

Learning outcomes

By the end of this module, students should be able to:

i) Explain concepts related to various 2D and 3D shapes;

ii) Explain surface area and volume of a cube, parallelepiped, prism, pyramid, tetrahedron, polyhedron, sphere, cylinder, cone, torus.

iii) Establish equations of lines and planes in 2D and 3D;

iv) Classify quadric curves and quadric surfaces;

v) Apply scalar product and vector product in computing length, angle, area and volume.

Module 6: Real Multivariable Calculus

Indicative content

This module introduces the student to functions of many variables: domains of definition, levels lines and surfaces, limits and continuity; polar, cylindrical and spherical coordinates; partial derivatives, Schwartz theorem, chain rule; total differentiation, directional derivative and gradient; optimization: critical points given a formula, maxima and minima, second derivative test; multiple integrals, curvilinear and surface integrals; gradient, divergence and curl of vector valued functions and Green and Stokes theorems.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain concepts related to functions of many variables, partial derivatives, total differentiation, directional derivative and gradient;

ii) Apply Green, Gauss-Ostrogradski and Stokes theorems;

iii) Find out critical points for and extrema of a given function using first and second derivative test;

iv) Demonstrate how to differentiate and integrate a multivariable function;

v) Show how functions of many variables arise from a wide variety of problems and how they are used to solve them;

vi) Apply the acquired concepts and methods to solve various related problems in mathematics or in any other domain.

Module 7: Multilinear Algebra

Indicative content

This module is designed to enable student teachers to get an overview of bilinear forms, quadratic forms and their classification; inner products, Euclidean spaces, Gram-Schmidt process, diagonalization methods, Lagrange methods(completion of squares), Jacobi methods; orthogonal diagonalization; simultaneous reduction of a pair of quadratic forms, Hermitian and unitary spaces, unitary diagonalization, multilinear forms and their applications in the geometry of quadrics, introduction to tensor algebra, metric tensor in Euclidean space.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of multi-linear, bilinear and quadratics forms;
ii) Demonstrate how to diagonalize orthogonally symmetric matrices;
iii) Demonstrate how to diagonalize, unitarily, Hermitian matrices;
iv) Use diagonalization in solving various algebraic problems;
v) Apply multilinear forms in the geometry of quadrics;
vi) Classify quadratic forms;
vii) Apply the acquired mathematical concepts to solve problems encountered in other sciences.

Module 8: Inferential Statistics

Indicative content

The module equips students with skills in sampling distributions; point and confidence interval estimation; hypothesis testing and analysis of variance; non-parametric methods; correlation analysis and regression; multiple regression; model building; residual analysis.

Learning outcomes

By the end of this module, students should be able to:

i) Differentiate inferential statistics and descriptive statistics;
ii) Explain the concepts of population and sampling;
iii) Select appropriate test to use in a given quantitative research project;
iv) Draw conclusion using inferential statistics element such as sampling distribution, estimation theory and hypothesis testing;
v) Conduct quantitative research in education;
vi) Use of MS Excel, SPSS, and other statistical software to calculate statistical measure, plot statistical graphs, estimated population parameters, confidence intervals, and test formulated hypothesis;
vii) Apply inferential statistics principles in solving real life problems.

Module 9: Complex Analysis

Indicative content

The module introduces students to complex functions and their applications in different disciplines of sciences. It contains the following topics: review of complex numbers and complex plane, polar form of complex numbers, powers and roots. It further explores series, uniform convergence, power series, analytic function, representation of analytic functions. Taylor's series and Laurent's series, Cauchy integral formula, Cauchy theorems. Zeros of analytic functions. Meromorphic functions, Residue theorem, evaluation of definite integrals. The argument principle and Rouche's theorem.

Learning outcomes

By the end of this module, students should be able to:

i) Explain concepts related to complex analysis;
ii) Apply basic properties of conformal mappings;
iii) Develop a complex function into Taylor and Laurent series;
iv) Study convergence of complex sequences and power series;
v) Apply Cauchy's theorem in computing complex integrals;
vi) Apply properties of analytic and harmonic functions in solving various problems.

Module 10: Differential Equations

Indicative content

The module covers topics such as first-order differential equations, linear differential equations of second and higher order and systems of differential equations, application in solving problems in science; First order equations and characteristics, classifications of general second order quasi-linear equations and reduction to standard form for each type (elliptic, parabolic and hyperbolic), finite difference solution to parabolic and elliptic equations, resolution of heat and wave equations, stability and convergence for solution to finite difference equations.

Learning outcomes:

By the end of this module, students should be able to:

i) Explain the concepts of ordinary and differential equations;
ii) Solve first and second order differential equations;
iii) Solve waves and Heat equations;
iv) Apply ODEs and PDEs in solving real life problems.

Module 11: Functional Analysis

Indicative content

The module introduces students to concepts of general topology such as metric spaces, topological spaces, open/closed sets, boundary, continuity, limits of sequences, compactness, bases, second countability, separability, sub-bases, weak and product topologies, neighborhood bases, first countability. It will also explore normed and Banach spaces, series in Banach spaces, convergence and absolute convergence, basic concepts from Lebesgue integration, Hölder's and Minkowski's inequalities, Baire category theorem and some of its consequences, open mapping theorem, application to Fourier series.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Explain key concepts of general topology;

ii) Identify Banach, Sobolev and Hilbert spaces;
iii) Distinguish linear operators in finitely many and infinitely many dimensions;
iv) Classify functional spaces and linear operators;
v) Demonstrate how to orthogonalize in Sobolev space.

Module 12: Numerical Analysis and Programming

Indicative content

The module introduces students to some numerical methods and simple programming in solving (a) algebraic and transcendental equations: bisection, regula-falsi, general iteration, Newton-Raphson, Bairstow, system of non-linear equations, system of linear equations and matrix using Gaussian elimination, Gauss-Jordan elimination, Crout's Reduction, Jacob and Gauss-Seidel iteration methods; (b) ordinary differential equations: Euler's method, the improved and modified Euler's method, Runge-Kutta method, Milne's method.

Learning outcomes

By the end of this module, students should be able to:

i) Explain various numerical methods applied in solving algebraic, transcendental and differential equations;
ii) Solve numerically integrals, ODEs and PDEs;
iii) Select appropriate technique to solve numerically a specific problem;
iv) Develop a simple computer programme to solve algebraic, transcendental and differential equations.

Module 13: Differential Geometry

Indicative content

The module introduces students to differential geometry of curves and surfaces and surface curves, Frenet equations for a curve, Darboux equations for a surface, fundamental forms, asymptotics, geodesic lines, basic definitions and examples of Lie Algebras, manifolds, tensor calculus on manifolds, Riemannian manifolds

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of topological and differential geometry and Lie algebra;
ii) Establish Frenet equations for a curve and Darboux equations for a surface;
iii) Calculate the curvature and the torsion of a curve;
iv) Determine the first and second fundamental forms of a surface;
v) Compute the total and mean curvatures of a surface;
vi) Determine the asymptotic, curvature and geodesic lines of a surface.

1.9.3 Chemistry modules

Brief Description of the aims

The Bachelor of Education (with Chemistry subject) intends to produce a qualified secondary school teacher mastering both extensive theoretical knowledge, practical skills in chemistry and professional skills to ensure he/she is fully equipped to meet the demands of being a Chemistry teacher in high schools. The Bachelor of Education (with chemistry) will have developed the ability to conduct independent research aiming to solve everyday chemistry related problems in society and will be able to pursue more advanced studies in chemistry, chemistry education and related fields.

Learning outcomes

By the end of this programme, students should be able to:

i) Apply basic mathematics and physics concepts in solving chemistry problems;

ii) Describe general, inorganic, organic, analytical and physical chemistry;

iii) Apply electrochemistry to produce energy from chemical reactions;

iv) Carry out chemical reactions using electrical energy;

v) Carry out quantitative and qualitative analysis while solving everyday problems related to chemistry;

vi) Apply polymer chemistry and biochemistry to extract various organic compounds used in medicine, food conservation, and pesticides;

vii) Apply radioactivity in various domains, like medicine therapy, pharmacy, geology, agriculture, environment and in solving environment related problems.

Table 6: Distribution of Chemistry modules

S/N	Module	Year of study	Semester	Credits
1	Mathematics for Scientists	1	1	5
2	General Chemistry	1	1	10
3	Organic chemistry I	1	2	10
4	Physical chemistry I	1	2	10
5	Electrochemistry	2	1	10
6	Analytical Chemistry I	2	1	10
7	Organic Chemistry II	2	2	10
8	Physical chemistry II	2	2	10
9	Polymer chemistry	3	1	10

10	Transition metals and Coordination chemistry	3	1	10
11	Biochemistry	3	2	15
12	Analytical chemistry II	4	1	10
13	Nuclear and radiochemistry	4	1	10
14	Industrial and Environmental Chemistry	4	1	10
Total credits				**140**

Module 1: Mathematics for Scientists

Indicative content

The aim of this module is to equip students with fundamental mathematics concepts that are applied in chemistry. It will cover fundamentals of calculus such as differentiation and integration of numerical functions, first and second order ordinary differential equations,

Learning outcomes

By the end of this module, students should be able to:

i) Carry out the elementary operations on numerical functions;
ii) Analyze the graph of the numerical functions;
iii) Calculate integrals by various methods of integration;
iv) Solve ordinary differential equations of the first and the second order;
v) Interpret the computed statistical parameters;
vi) Compute simple and conditional probability of events;
vii) Apply mathematical analysis to solve chemistry problems.

Module 2: General Chemistry

Indicative content

The goal of this module is to equip students with knowledge and understanding of periodic classification and atomic structure. This module covers electronic properties of atoms and molecules; distribution of electrons into shells and orbitals, electron shell; nucleus, nuclear charge, orbitals; structure of the atoms; electron configurations and periodic classification; periodic table, ion and electron affinity and trends; periodic properties of elements in the periodic table; ionization energy, electronegativity chemical bonding theory; Valence Bond Theory, hybrid orbitals, drawing chemical structures; basic chemical reactions, oxidoreduction reactions, acid base reactions, and laboratory safety.

Learning outcomes

By the end of this module, students should be able to:

i) Interpret the properties of elements from the periodic table;

ii) Describe atomic structure, modern periodic table and periodic properties of elements;

iii) Explain the process of bond formation;

iv)Draw Lewis dot and line structures to represent chemical bonds using chemsketch;

v) Isolate the extracted Li, Be and F for purposeful use;

vi)Predict properties and structures of common compounds.

Module 3: Organic Chemistry I

Indicative content

This module introduces students to organic chemistry, organic synthesis and chemistry of aromatic compounds. It covers introduction to organic chemistry: chemistry of carbon, types of carbon bonds, types of carbon backbones & common types of isomerism in organic chemistry, orbital hybridizations, formal charges, formulas (Lewis, figure and stick, condensed). It also covers empirical, molecular & structural formulas, and homologous series, nomenclature and physical and chemical properties of carbon chains. The module also focuses on organic functions including alcohol, aldehyde, ketone, carboxylic acid, amide, amine, nitrile, ethers, esters as well as their physical and chemical properties. Finally, it deals with aromatic chemistry.

Learning outcomes

By the end of this module, the students should be able to:

i) Design experimental set up for compounds belonging to various functional groups;

ii) Derive the mechanism of organic reactions;

iii) Interpret the main properties of aromatic compounds;

iv) Synthesize carboxylic acid and their derivatives;

v) Differentiate between open-chain ethers and epoxides;

vi) Carry out experiment of side chain reactions of aromatic compounds;

vii) Analyze the reaction mechanisms of the different organic compounds;

viii) Use chemistry software to draw organic compound structures and equations of reactions.

Module 4: Physical Chemistry I

Indicative content

The main goal of the module is to introduce and explain Physical Chemistry, Chemical Kinetics and Chemical Thermodynamics. It covers fundamental physics for chemists including physical and non-physical quantities; properties of matter: phases of matter, density and elasticity, Berbouilli's equations for ideal fluid flow; Thermal Physics: thermometers, coefficient of thermal expansion, conservation of energy. The module also focuses on atomic theory including basic concepts, particles of the atom, evolution of the core electrons in the atom; Molecular theory: chemical bond, structure of the ions and polyatomic molecules;

States of the matter: gas, solid and liquid states; Ideal gas law; Chemical reaction; Reaction rates; Determination of rate laws; Integration of rate laws; Rate laws and equilibrium constants for elementary reactions; Temperature dependence of rate constants; Reaction mechanisms; Catalysis; Enzyme catalysis; Thermodynamics: temperature, system, surroundings, types of processes and reversibility, physicochemical balance; First Law: internal energy, work, heat, sign conventions; State functions vs. path-dependent variables; Heat capacity at constant volume; Enthalpy: heat capacity at constant pressure; The Joule and Joule-Thomson experiments; Second Law: entropy, spontaneity; Gibbs and Helmholtz free energies.

Learning outcomes

By the end of this module, students should be able to:

i) Distinguish physical and non-physical quantities;

ii) Describe properties of matter;

iii) Apply the concepts of thermal physics in chemistry;

iv) Discuss first and second law of thermodynamics and thermochemistry;

v) Describe the solid, liquid and gaseous states of matter;

vi) Distinguish between a first-order reaction and a second-order reaction;

vii) Explain the collision model of chemical reactions and how various factors affect reaction rate;

viii) Apply Hess' Law to thermodynamic problem;

ix) Discuss the effect of temperature on the spontaneity of a chemical reaction.

Module 5: Electrochemistry

Indicative content

The electrochemistry module goal is to apply electrochemical concepts to carry out reactions using electrical energy and to produce energy using electricity. It explains redox reactions and electrochemical cells; Aqueous solutions, conductivity, conductivity of aqueous ionic solution, concentration, and activity of ions in aqueous solution; Oxidation number and its determination, redox reactions, balancing redox equations; Galvanic / voltaic cells (cell diagram and notation, standard electrode potentials, cell potentials, Nernst equation); Dry cells (Leclanché, Mallory, miniaturized button cells/), and fuel cells; Free energy and electrical work (relationship between E, G and K); Electrolytic cells: definition of electrolysis, laws of electrolysis and application; Secondary batteries / accumulators (Lead, Cd-Ni, Ni-MH); Corrosion: causes, mechanism, and prevention; The lab practicals for this module will concern diverse experiments: conductivity, study of redox reaction, electrochemical cell, electrolytic cell, and corrosion.

Learning outcomes

By the end of this module, students should be able to:

i) Prepare aqueous solutions;

ii) Describe the reference electrode;

iii) Measure redox potentials;

iv) Determine the spontaneousness and non-spontaneousness of a redox reaction;

v) Explain the phenomena of electrolysis and corrosion;

vi) Apply electrolysis principles to carry out chemical reactions;

vii) Use electrochemistry principles to produce electricity from chemical reactions;

viii) Explain the functionality of the piles and batteries;

ix) Identify the causes of corrosion of objects made in metals;

x) Design electrochemical cells.

Module 6: Analytical Chemistry I

Indicative content

The module of Analytical Chemistry I, equips learners with knowledge and skills of determining what matter is and how much of it exists and explains basic concepts of analytical chemistry. It includes concepts such as acidity, alkalinity, solubility of salts, buffer solutions, and various traditional methods of chemical analysis; Potential of hydrogen (pH), buffer solutions; Solubility and solubility product, solubility in polar and non- polar solvents, salts hydrolysis, Stages of analysis, gravimetric analysis methods and titrimetric methods; Preparation of the solutions, acid-bases titration, complexometric titration redox titrations and their applications. The practical sessions for this module concern diverse experiments such as preparation of standard solutions and buffer solutions, pH determination, gravimetric analysis, and various types of titrations).

Learning outcomes

By the end of this module, students should be able to:

i) Differentiate between activity and concentration;

ii) Explain the concepts of acidity, alkalinity, pH and buffer solutions;

iii) Describe the product of solubility, the effect of common ion and the hydrolysis of salts;

iv) Use the methods of gravimetric analysis and titrimetric analysis to determine the concentration of solutions;

v) Describe complexometric and precipitation reactions;

vi) Carry out experiments concerning acid-base, complexometric, and precipitation titrations.

Module 7: Organic Chemistry II

Indicative content

The module describes the stereochemical properties of organic compounds and deals with stereospecificity and regioselectivity of certain organic reactions. Its content include principal

synthesis reactions in organic chemistry; concepts of stereochemistry: chirality, stereoisomers; Chiral Carbon atom and stereocenters, achiral compounds, (R) and (S) configuration, Cahn–Ingold–Prelog priority system; Properties of enantiomers: optical activity, specific rotation, racemic mixtures, optical purity and enantiomeric excess; Fischer projections; Meso compounds, diastereomers and their properties; Aliphatic substitution: nucleophilic and organometallic, aliphatic, alkenyl, and alkynyl substitution (SN1 and SN2 reaction mechanisms); Electrophilic and organometallic, elimination reactions of alkyl halides (E1 and E2 reactions); Multistep syntheses and the study of name organic reactions (cannizzaro reaction, clemmensen reduction reaction, Finkelstein reaction, Friedel crafts reaction, Reimer-Tiemann reaction, Rosenmund reduction reaction, Wolf Kishner reaction, Wurtz reaction, Wurtz-Fittig reaction, Fischer esterification, Claisen condensation). The practical sessions of this module concern various experiments such as use of polarimeter to determine optical rotation of optically active organic compounds, laboratory synthesis of different organic compounds, Effect of the alkyl halide structure on the relative rates of SN2 Reactions, SN1 reactions of alkyl halides; preparation of products used in everyday life such as aspirin; β-naphthol methyl ether, paracetamol, etc.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the stereochemistry language;

ii) Present the molecules in three dimensions (3D);

iii) Interpret conformations of simple molecules;

iv) Describe the enantiomeric excess and diastereomeric relationships of stereoisomers;

v) Synthesize organic products used in real life and experimentally determine their optical rotation;

vi) Apply appropriate procedures/methods to synthesize organic compounds;

vii) Interpret stereospecificity and regioselectivity of organic reactions;

viii) Carryout common substitution reactions (SN1 and SN2 reactions);

ix) Design a set up for elimination reactions (E1 and E2 reactions).

Module 8: Physical Chemistry II

Indicative content

The goal of this module is to clarify the physical states and phase changes as well as chemical equilibrium and its applications. It includes the comparison of ideal gas and real gasses; Van der Waals equation; phase equilibrium; a phase diagram and its features; Clausius-Clapeyron equation and its applications; effect of pressure and temperature on physical state; colligative properties and their applications, colligative properties to find out molecular mass and molecular formula of the solute; Henry and Raoult's law and their applications; types of chemical reactions (reversible and irreversible); equilibrium condition and law of equilibrium; equilibrium constants (Kc), equilibrium expression involving pressure (Kp); relationship between Kc and Kp; characteristics of homogeneous and heterogeneous equilibria; multiple equilibria; Reaction direction (comparing Q and Kc) / application of equilibrium constant. Le Châtelier's principle: effect of a change in concentration,

temperature, pressure, and catalyst. The practical sessions of the module concern the determination of viscosity and surface tension, study of colligative properties (elevation of boiling point, depression of freezing point, etc.); demonstration of the molar heat of vaporization; study of various physical and chemical equilibria.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the equilibrium the rule and nature of phase changes;

ii) Determine the effect of pressure and temperature on the boiling and the solidification of liquids;

iii) Describe Henry and Raoult's laws and their applications in real life;

iv) Interpret Laws of chemical equilibrium and factors that affects equilibrium positions;

v) Predict chemical equilibriums and their applications;

vi) Apply Le Chatelier's principle for industrial use;

vii) Sketch phase diagrams.

Module 9: Polymer Chemistry

Indicative content

The aim of this module is to equip students with theoretical and practical knowledge about natural polymers, synthetic polymers and various polymerization mechanisms. The module deals with generalities on polymers; introduction to polymer: monomer, polymer, polymerization reactions, polymer nomenclature, importance of polymers in everyday life; Classification of polymers: based on source, structure, mode of polymerization, molecular forces, growth polymerization, application and physical properties, crystallinity and tacticity); types and mechanisms of polymerization: addition (chain growth) and condensation (step-growth) polymerization reactions, free radical, anionic, cationic and coordination polymerization mechanism; main condensation and addition polymers: polyamides, polyesters, polycarbonates, polyurethanes, polyimides, formaldehydes resins (polyethylene, Teflon). It also covers copolymer and polymerization reactions: random, alternate, graft, block polymers and their copolymerization mechanisms, general equation of copolymerization reaction and its relationship with copolymers formation based on r1/r2 ratio; Mechanical properties of polymers: elasticity, plasticity, strength, toughness, ductility, brittleness and hardness), effects of additives, blending, copolymerization, and molar mass on mechanical properties of polymers; generalities on biodegradable polymers. The practical sessions concern extraction of various natural polymers from natural sources such as DNA, starch, from natural sources; laboratory synthesis of polymers such as nylon 6,6.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of monomer, polymer, polymerization reactions and polymer nomenclature;

ii) Explain the importance of polymers in everyday life;

iii) Apply the various methods to extract and isolate natural polymers;

iv) Classify of various types of polymers;

v) Discuss the mechanisms of polymerization reactions;

vi) Describe the main condensation and addition polymers, and copolymer;

vii) Determine mechanical properties of polymer;

viii) Describe biodegradable polymers;

ix) Design procedures of preparation of different classes of polymers.

Module 10: Transition metals and Coordination chemistry

Indicative content

The module aims at explaining the origin of specific characteristics of transition metals and their compounds and focuses on theories of formation of coordination compounds and their application in daily life. It includes concepts such as characteristics or properties of Transition Metals (d-block elements); coordination compounds and theories of formation of coordination compounds (complexes); general properties of transition metals and their origin; electronic configuration. It also deals with variable oxidation states and consequences; physical and chemical properties of transition metals; chemical and physical properties, and nomenclature of the main compounds such as oxides, halides, sulfates, nitrates, carbonates; extraction of transition metals from ores, dangers associated with metal and metal extraction and prevention measures. It also includes structures of coordination compounds; isomerism; bonding theories for coordination compounds: Valence Bond Theory (VBT); Molecular Orbital Theory (MOT) and Crystal Field Theory (CFT); explanation of the origin of properties of transition metal complexes using the above theories; stability and properties of coordination compounds; rates and mechanisms of reactions of coordination compounds; catalysis and some industrial processes; applications of coordination compounds. Practical sessions concern the reactions of transition metals; identification tests of transition metal cations; complexometric titration, synthesis of complexes, polarity test of complexes, complex polarization experiments, field visits to mining sites.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the occurrence, stability, physical and chemical properties, production and industrial applications of transition metals and their main compounds;

ii) Extract the transition metals from ores;

iii) Describe structures, nomenclature, geometry, physical and chemical properties, bonding theories, and industrial applications of complexes;

iv) Carry out the experiments related to various reactions of transition metals;

v) Predict the existence of a transition metal compound and its properties;

vi) Apply VBT and CFT in coordination compounds;

vii) Write a comprehensive report after visiting mining sites to explore the transition metals in natural states.

Module 11: Biochemistry

Indicative content

This module intends to provide learners with deep knowledge in biomolecules and their metabolisms. It focuses on general definitions and structures of the biomolecules: carbohydrates, amino acids, proteins, lipids, nucleic acids, enzymes; properties and function of biomolecules: study of general properties, nomenclature, classification and biological roles of biomolecules, the study of enzyme kinetics; Study of Carbohydrate metabolism: glycolysis, Krebs cycle, oxidative phosphorylation, and gluconeogenesis; lipid metabolism: β-oxidation, ω-oxidation, and anabolic pathway of triglycerides, proteins and amino acids' metabolism: amino acids degradation and urea cycle. The biochemistry practical work will be centered on isolation, testing the presence, estimation, and the study of the properties of main biomolecules.

Learning outcomes

By the end of this module, students should be able to:

i) Describe general properties, and biological roles of biomolecules;

ii) Explain the relationship between initial velocity and substrate concentration for competitive and non- competitive inhibitors;

iii) Classify the carbohydrates, lipid, proteins, and amino acids;

iv) Perform experiments related to the isolation, testing and estimation of the biomolecules;

v) Determine the metabolism of amino-acids degradation and urea cycle coordination compounds synthesis;

vi) Separate constituents of biomolecules mixtures using various techniques;

vii) Use chemsketch software to draw complex molecules of biomolecules.

Module 12. Analytical Chemistry II

Indicative content

The main goal of this module is to equip students with various instrumental and statistical methods of analysis. It includes introduction to analytical chemistry II**:** Examples of real-life analytical questions; analytical measurements; classical and instrumental analytical chemistry; extraction techniques: definition, principles of solvent extraction, solvent extraction methods (liquid/liquid extraction, liquid/solid extraction, acid/base extraction); factors affecting solvent extraction. It also includes instrumental analysis including chromatographic analysis: definition, principle and application of paper chromatography; thin layer chromatography; column chromatography, gas chromatography (GC), high performance liquid chromatography (HPLC); spectroscopy: Beer-Lambert law**;** definition, principle and application of UV-VIS, nuclear magnetic resonance (NMR); analytical methodologies: classification and propagation of errors; determinate and indeterminate errors; comparison between population and sample; hypothesis testing; confidence intervals, and linear regression; confidence limits; testing for significance; testing a hypothesis; correlation and regression analysis. The practicals sessions will focus on extraction of compounds using various solvents; analysis of samples using paper and column

chromatography, thin layer chromatography; gas chromatography (GC), high performance liquid chromatography (HPLC), UV-VIS and NMR spectrometer.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the principle, measurement, and applications of chromatographic methods;

ii) Identify the best method of sample preparation required for a particular analytical technique;

iii) Use the principle, measurement, and applications of spectroscopic methods to analyze samples;

iv) Analyze various types of chemical samples using analytical instruments with appropriate software;

v) Write laboratory reports in a concise, systematic and professional manner;

vi) Explain the principle, measurement, and applications of equipment combining both chromatographic and spectroscopic methods;

vii) Test hypotheses using experimental data;

viii) Use softwares associated to various chemical instruments to analyze samples.

Module 13: Nuclear and Radiochemistry

Indicative content

This module aims at imparting students with deep knowledge about nuclear reactions, radioactive materials and their applications. It focuses on the use of the symbols for atom particles: beta particles, and gamma rays; balancing equations for nuclear reactions, qualitatively interpreting a decay series and performing energy calculations for nuclear reactions; chemistry of radioactive elements and their compounds; occurrence and behavior of natural and artificial radionuclides in the environment; radioisotopes, radiochemical principles; stability and instability of nuclei of atoms; emission of alpha, beta and gamma rays and their properties; effect of electric and magnetic fields on the radioactive rays; nuclear equations and radioactive decay series; nuclear transmutations (fission and fusion) and their applications; rate of radioactive decay, binding energy, radioelements in nature; particle accelerators, production of radionuclides, principles of nuclear power, nuclear power reactors, behavior of radionuclides in the environment; uses of radioactive tracers / radioisotopes e.g. 14C, 32P, 60Co, 131I; applications of radioactivity in medicine (especially positron emission tomography and nuclear medicine therapy), radiopharmaceuticals; radioactive pollution and simple dosimetry; health hazards of the radioactive substances. The practical sessions will focus on detection of radiations and radioisotopes.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the radioactive pollution and health hazards of the radioactive substances and the benefit of radiochemicals;

ii) Calculate activity, decay rate, decay constant, half-life, and binding energy;

iii) Explain the radioelements in nature, radiation protection, production of radionuclides, and principles of nuclear power;

iv) Apply radioactivity in various domains, like medicine therapy, pharmacy, geology, agriculture, and environment;

v) Carry out experiments related to different radioisotopes;

vi) Analyze impact of radioactivity on the environment.

Module 14: Industrial and Environmental Chemistry

Indicative content

The focus of this module is to equip students with theoretical knowledge and practical skills of industrial processes. It highlights differences between industrial operations and laboratory operations; types of reactors, ancillary units and industrial diagrams; environmental problems introduced by industrial processes such as pollution, greenhouse effect and global warming and their consequences; reactions and reactors, types of reactors; effect of simultaneous or competitive reactions on the performance of the reactor; selected examples of industrial production; classes of chemical substances present in the environment, their properties, distribution, and transport in different compartments (air, water and soil); sources of air pollution, soil pollution, water pollution from natural and anthropic activities (industrial and agriculture); principal classes of pollutants (organic and inorganic pollutants); the problem of waste production and their treatment. The laboratory practical sessions will focus on sampling of water, soil and air, measuring chemical parameters of water bodies such as conductivity, chemical oxygen demand, hardiness, temperature and salinity.

Learning outcomes

By the end of this module, students should be able to:

i) Compare the industrial operations and laboratory operations, reactions and reactors;

ii) Explain the applications of nuclear and radiochemistry;

iii) Explain industrial production process;

iv) Identify classes of chemical substances present in environment, their properties, distribution;

v) Explain the sources of air, soil, and water pollution from natural and anthropic activities;

vi) Analyze the problems of waste production and their treatment;

vii) Carry out the experiments related to sampling of water, soil and air, and measuring chemical parameters of water bodies.

1.9.4 Computer Science modules

Brief description of aims

This programme aims to produce computer science graduate teachers capable of using and teaching computing principles, concepts, and techniques necessary to design, implement,

manage, and maintain computing and communication systems that address and provide solutions to various activities for the benefit of humanity. The students will learn about various modules, from basics to advanced computing systems, that prepare them for continued professional development.

Learning Outcomes

At the end of this programme, students should be able to:

i) Explain the essential concepts, principles, and theories relating to computer science and software applications;

ii) Perform the modeling, design, implementation and evaluation of computer-based systems;

iii) Apply computer science theory and software development fundamentals to produce computing-based solutions;

iv) Develop computer software/ applications using modern platforms.

Table 7: **Distribution of Computer Science modules**

S/N	Module	Year of study	Semester	Credits
1	Data structures and Algorithms with C++	1	1	10
2	Computer Systems and maintenance	1	1	10
3	Databases Management Systems and VB.Net	1	2	10
4	Computer networks	1	2	10
5	Object Oriented Programming with Java	2	1	10
6	Information and network Security	2	1	10
7	Web Programming	2	2	10
8	Software Engineering	2	2	10
9	Mobile Applications programming	3	1	10
10	Operating Systems	3	1	10
11	Machine learning with Python	3	2	10
12	Computer Graphics and Multimedia	3	2	10
13	Artificial Intelligence	4	1	10

14	Virtual Reality and Emerging Technologies for Education	4	1	10
Total credits				**140**

Module 1: Data Structures and Algorithms with C++

Indicative content

This module aims to give the student all the necessary knowledge and skills in data structures, algorithms, and object-oriented programming by using C++ language. The students will learn fundamentals of programming, including variables and Constant Declaration, data types, operators, and expressions; Logic Design: flowchart and pseudocode for algorithm design; Functions, Coroutine and Sub-programs, Library, and internal functions v/s User-defined functions. Parameter-passing mechanisms, returning result argument. The introduction to object-oriented paradigm with C++: Class, Object, Inheritance, Polymorphism, and data abstraction will also be discussed in this module. The learners will get the knowledge of linear data structures and their algorithm presentations: Arrays, Stacks and applications, Infix, Prefix and Postfix Expressions, Recursion, Queues, Pointers, Linked allocation, Linear Linked Lists, Circular Linked Lists, Doubly Linked Lists. This module will also discuss the concept of nonlinear data structures and their algorithm presentations: Trees, Graphs, and Multidimensional arrays. Finally, the module will also introduce different Sorting and searching algorithms.

Learning Outcomes

By the end of this module, students should be able to:

i) Explain a range of object-oriented paradigm concepts;

ii) Discuss the linear and non-linear data structures and algorithms for manipulating them;

iii) Create programs that include various data structures like arrays, linked lists, stacks, queues and trees using C++.

iv) Implement sorting and searching algorithms by using C++ programming language;

v) Evaluate Data Structures and Algorithms efficiently for applications in specific software and systems;

vi) Break down complex algorithms into simple ones for a good solution;

vii) Use appropriate data structures, algorithms, computational software and other technologies to address societal problems through software development.

Module 2: Computer Systems and Maintenance

Indicative content

The aim of this module is to introduce the concept of computer systems, the basic building blocks of a computer system and their functions, and to provide hands-on skills in computer maintenance. The students will gain knowledge of data, information, binary number systems,

Input/Output devices, storage, control devices, and Central Processing Unit. They will also learn the Memories, Data files: Random and sequential, and Disk storage: track, sector, cluster, and surface. Boolean Algebra and digital logic: Rules, Theorems, Algebraic simplification, Karnaugh map, Logic gates as basic building blocks, Integrated Circuits, different levels of integration, and functional components of computers based on the Von Neumann architecture will also be discussed in this module. The maintenance part will give the learners hands-on diagnosis skills of common computer hardware and software errors/problems, their causes and troubleshooting, assembling and dismantling computers, hard disk partitioning, operating systems and software installations. The student will learn the Safety and Ethical Use of Computers.

Learning Outcomes

By the end of this module, students should be able to:

i) Explain the structure, function, and characteristics of computer systems;

ii) Use Boolean algebra and the Karnaugh map as tools to simplify and design logic circuits;

iii) Carry out personal Computer hardware and software installation, configuration, and upgrading;

iv) Perform preventive maintenance, advanced diagnosis, and troubleshooting.

v) Analyze a given computer problem to apply a systematic scheme and method for computer maintenance;

vi) Develop a maintenance guide to be used in a computer workshop;

vii) Demonstrate personal responsibility and autonomy in working and dealing with complex and novel situations in computer maintenance.

Module 3: Databases Management Systems and VB.Net

Indicative content

The aim of this module is to help students understand and use the database management systems as well as integrate the database VB.Net event-driven programming. In the database, students will mainly gain the knowledge of introduction to DBMS, Data Models and Representation of data, and Database Functions. Database Design Concepts, Database normalization, RDBMS, Relational Algebra and Relational Calculus, Introduction to emerging database technologies, and Introduction to DDBMS will be discussed in this module. Learners will get the knowledge of Visual Basic.NET: Visual Basic.NET Interface design, objects, Forms, Label, Textbox, Command Button, Listbox, ComboBox, Calendar Control, ADODC, Object properties, Events, actions, Single Document Interface (SDI), Multiple Document Interface (MDI) Windows Forms, Saving/Accessing data in your .NET applications using ADO.NET. Students will also learn how to do a Project in Visual Basic.NET connected to a database (i.e., Microsoft Access, MySQL).

Learning Outcomes

By the end of this module, students should be able to:

i) Discuss database management systems, databases, and their applications;

ii) Perform the analysis, design, and evaluation of a real database application using a database management system;

iii) Write Visual Basic programs which utilize the seven basic control structures;

iv) Complete a Visual Basic application which could be used in an education setting;

v) Develop software applications that manage databases with Visual Basic.NET;

vi) Use Visual Basic.NET and emerging technologies to address societal problems through research and scholarships;

vii) Solve societal problems based on research-based evidence related to database management systems and VB.Net.

Module 4: Computer Networks

Indicative content

This module aims to help the students get the knowledge and skills to create a computer network to facilitate the accessibility and sharing of resources and information to anyone on the computer network. The students will learn data communication concepts, techniques and technologies in layered network architecture, communications switching and routing, types of communication, network congestion, network topologies, network configuration and management. The module will also discuss network model components, layered network models (OSI reference model, TCP/IP networking architecture) and their protocols, various types of networks (LAN, MAN, WAN and Wireless networks) and their protocols. Finally, this module will discuss IP addressing, subnetting and supernetting knowledge, Following Domain Name Space (DNS) - SMTP, FDP, HTTP, and WWW.

Learning Outcomes

By the end of this module, students should be able to:

i) Discuss the rudiments of how computers communicate;

ii) Describe the different components of computer networks, network layered approach, various protocols, modern technologies, and their application;

iii) Designed computer networks ranging from simple to complex, including LANs, WANs, and wireless networks;

iv) Implement computer networks ranging from simple to complex, including LANs, WANs, and wireless networks;

v) Describe the functions of the Network Layer, i.e. Logical addressing, subnetting and routing Mechanism;

vi) Demonstrate original responses to problems and issues related to computer networking;

vii) Critically analyze the needs of an organization to further suggest a suitable network solution.

Module 5: Object Oriented Programming with Java

Indicative content

This module aims to equip the students with knowledge and skills in object-oriented programming with Java. The students will be introduced to Java programming and in-depth practice with OOP concepts, including Classes and objects, data abstraction, encapsulation, inheritance, and polymorphism. They will also deal with Files and connecting to databases, querying a database, and processing the results, updating data with JDBC. The notions of Exception Handling, Multithreading, GUI programming and applets. Containers: JFrame, JApplet, JDialog, Jpanel, an overview of AWT API and Swings components: JButton, JLabel, JTextField, JTextArea, simple applications will be discussed in this module. Learners will learn Layout management: Layout manager types, border, grid, and flow. Finally, the module will discuss the Applets: Inheritance hierarchy for applets, differences between applets and applications, the life cycle of an applet, and passing parameters to applets.

Learning Outcomes

By the end of this module, students should be able to:

i) Design solutions to real world problems using object-oriented programming concepts and Java language features;

ii) Apply the object-oriented programming language to develop software, including programs utilizing multiple Classes;

iii) Design event-driven GUI and web-related applications which mimic the real-world scenarios;

iv) Demonstrate technical skills to realize exception handling, event handling and multithreading;

v) Collaborate in a team environment to analyze and devise a Java-based application.

Module 6: Information and network Security

Indicative content

This module aims to acquaint the students with the necessary information and network security knowledge. The students will get a knowledge of overview of Cryptography, network security, Security architecture, and Various types of security attacks. Classical and modern conventional encryption techniques, Algorithms of conventional algorithms such as DES and AES. Public-key cryptography, such as RSA and elliptic Curve Digital signatures, will be discussed in this module. The module will also discuss the authentication protocols, cryptographic attacks, public-key cryptography, symmetric-key algorithms, applications of authentication, and authentication protocols. The module will discuss email security, IP and Web security, System and network security procedures, Security issues and requirements, and Denial of Service (DoS) attacks and defense. Finally, the module will discuss wireless security, intrusion detection, and response preparation.

Learning Outcomes

By the end of this module, students should be able to:

i) Discuss the advanced concepts of cryptography, such as encryption, decryption, symmetric key cryptography, asymmetric key cryptography, hash functions, digital signatures, and key management;

ii) Apply cryptographic methodologies to maintain the Confidentiality, Integrity and Availability of data;

iii) Design secure systems using cryptographic techniques and network security protocols;

iv) Implement secure systems using cryptographic techniques and network security protocols;

v) Demonstrate various network security applications, IPSec, Firewall, IDS, Web Security, Email Security and Malicious software;

vi) Collaborate in a team environment to analyze security threats and implement solutions.

Module 7: Web Programming

Indicative content

This module aims to provide the students with the required technical skills and knowledge in creating high-quality, usable, scalable, real-time, and accessible web applications using industry-standard technologies. Students will learn about introduction to internet technology, Client-side/front-end technologies (HTML, Cascading style sheet, JavaScript), Server-side technologies (PHP Scripting Language, MySQL), and Connecting with the backend. They will also get an introduction to web development frameworks like Bootstrap, Laravel, Node.js. Finally, the module will introduce web design with content management systems (CMS) like Joomla and WordPress. This module will also discuss usability and User Experience in Web Design.

Learning Outcomes

By the end of this module, students should be able to:

i) Use HTML, CSS, and JavaScript front-end web technologies to design responsive and user-friendly web pages that meet specified needs and interests;

ii) Discuss client-server architecture;

iii) Develop server-side applications using server-side scripting languages, such as PHP;

iv) Design web-based applications with chosen content management systems;

v) Identify a range of web development frameworks in high quality web applications;

vi) Work collaboratively in a team environment to develop web applications;

vii) Develop software solutions to real-life problems using web development frameworks.

Module 8: Software Engineering

Indicative content

This module aims to teach several important areas of software engineering, concentrating on the specification and design of software systems and project management. It discusses the Software Engineering Methodology and SDLC: Different methodologies, Prototyping, waterfall model, Iterative Spiral model, Rapid Action Development model, System Development Life Cycle, Brief introduction of various Phases of SDLC. The learners will get the knowledge about introduction to System Analysis and Design. The Role of the Systems Analyst, System Analysis. Information Gathering: The Tools for Information representation: Data Flow Diagram (DFD) will be discussed in this module. Learners will learn about Data Dictionary, Decision Trees, Decision Tables, and System Design. The concepts of Object-Oriented Development, System Testing and Quality Assurance, User Training, Implementation and Maintenance will be discussed in this module. The module will also tackle the project Scheduling and Software: What is Project Management, Tools for Project Management. Finally, the notions of Computer Aided Software Engineering (CASE tools), Gantt chart, and pert chart will be discussed in this module.

Learning Outcomes

By the end of this module, students should be able to:

i) Discuss the Software Development Life Cycle models and Methodologies;

ii) Describe the principles and practice of the development of software systems, including requirements specification, design, validation, implementation and evolution;

iii) Manage software projects to ensure good quality software with high reliability;

iv) Use state-of-the-art tools and techniques when developing software systems;

v) Conduct quality assurance according to the established test plans to ensure the software meets the requirements and maintains high quality;

vi) Work collaboratively in a team environment to develop software projects.

Module 9: Mobile Applications Programming

Indicative content

This module aims to provide learners with the ability to design, develop, test and deploy native touchscreen mobile applications that adhere to the design guidelines of the targeted smartphone operating system. It introduces the Android Operating System, Android Design Patterns and Guidelines. Setup Android Development Environment: Installing Android Studio IDE, Installing Android SDK, Installing Android Packages, and Creating an Android Virtual Device (AVD). Creating Android Apps that include different layout components (Text View, Image View, Button, Relative Layout, Linear Layout, RecyclerView, GridView,...). The module will also help learners create an app with multiple Activities, Drawables, Toast Messages and Alert Dialogs. The learners will learn about working with the Android Manifest file, uses-permissions, audio files, videos, menus, SQLite database, Firebase and Maps, Running an Android app (AVD, Android phone), and generating unsigned and signed APK.

Learning Outcomes

By the end of this module, students should be able to:

i) Describe the fundamental aspects of a mobile phone operating system and its subsystems;

ii) Develop Android applications that take advantage of advanced phone features and deploy them in the marketplace;

iii) Implement mobile phone applications using an OS emulator;

iv) Debug mobile phone applications using an OS emulator;

v) Test mobile phone applications using an OS emulator;

vi) Deploy mobile applications to app stores, such as Google Play or Apple App Store, and know how to handle the submission and approval process;

vii) Collaborate in a team environment to develop mobile applications and understand the importance of project management tools;

viii) Take the lead on planning in familiar or defined context the appropriate mobile applications to solve a real-life problem.

Module 10: Operating Systems

Indicative content

This module focuses on the concepts involved in the design of operating systems, understanding their complexity and many requirements. It introduces the overview of Operating Systems' background and basics. The notions of Processes and Threads: Context Switches, Synchronization and CPU Scheduling; Deadlock: Deadlock overview, deadlock prevention and avoid deadlock, Methods for recovering from a deadlocked state, and Deadlock detection will be discussed in this module. Learners will also get the knowledge of Memory Management, Memory allocation and memory access; File System: File allocation methods, and disk allocation algorithms. The module also introduces Security: Different types of malware, security techniques like access controls, intrusion detection and malware defense. In this module, the concepts of Real-Time applications and classification: Digital Control, High-Level Controls, Signal processing and other applications, Jobs and Processors, Release Times, Deadlines, Constraints, Hard Real-Time Systems, Soft Real-Time Systems, and programming language constructs for parallel computing will be discussed.

Learning Outcomes

By the end of this module, students should be able to:

i) Explain fundamental concepts of operating systems and their structure, processes, and threads;

ii) Analyze the memory management techniques;

iii) Apply files and I/O management in a computer system;

iv) Discuss the algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, and Response Time;

v) Exercise personal responsibility and autonomy to decide on appropriate operating Systems in a given environment;

vi) Use appropriate techniques and approaches in teaching operating systems.

Module 11: Machine learning with Python

Indicative Content

This course aims to equip students with knowledge and skills for data processing using Python programming language and teach a computer to learn concepts using data without being explicitly programmed. Students will be introduced to concepts of Python, cost function, and the gradient descent method for learning. Popular machine-learning algorithms will be used to tackle classification, regression, and clustering problems.

Learning Outcomes

By the end of this module, students should be able to:

i) Wrangle the imported data using Python libraries;

ii) Divide data into training and test datasets;

iii) Apply machine learning techniques to real-world problems;

iv) Evaluate machine learning models using appropriate metrics and techniques like cross-validation and hyperparameter tuning;

v) Determine appropriate machine learning methods for supervised and unsupervised problems;

vi) Collaborate with others to develop machine learning projects to improve education system.

Module 12: Computer Graphics and Multimedia

Indicative content

This module aims to introduce well-rounded computer graphics and multimedia to the learners. It discusses the introduction to Computer Graphics, Display Devices and Graphics Hardware, Graphics Software, Color Theory and Color Models, 2D and 3D graphics, and Computer Animation. The module will help the learners to understand Multimedia Elements and Authoring Programs, Data Compression, Multimedia Operating Systems, and Multimedia Communication Systems. The module will give the Case Study: Digital Camera Manipulation, using a scanner to capture images, setting resolution and manipulation with the authoring tools. Learners will learn Scratch programming case studies: Writing games, animations, and stories using scratch. Finally, the module will discuss GIS and Computer graphics: Introduction to GIS, GIS applications, Design and manipulate maps with GIS software like ArcGIS and QGIS.

Learning Outcomes

By the end of this module, students should be able to:

i) Explain concepts in computer graphics and multimedia;

ii) Use a modern graphics API to create graphics applications of different types;

iii) Integrate multimedia into various applications;

iv) Use Scratch programming to program various applications in education;

v) Apply GIS software to generate maps and analyze spatial data;

vi) Pursue the development of graphics techniques and their associated interactive tools right up to the current state of the art;

vii) Exercise personal responsibility and autonomy to develop a multimedia solution using graphics design authoring tools appropriate in education system.

Module 13: Artificial Intelligence

Indicative content

This module explores advanced Artificial Intelligence (AI) concepts and their practical applications. The module covers Artificial Neural Networks, Deep Learning, Natural Language Processing (NLP), Computer Vision, and ethical considerations in AI. Students will acquire knowledge and skills to create and train deep neural networks, use pre-trained models, build NLP applications, and work with computer vision techniques to process images and videos.

Learning Outcomes

By the end of this module, students should be able to:

i) Explain the fundamental concepts of artificial neural networks, including neurons, layers, and activation functions;

ii) Implement neural network architectures using deep learning frameworks like TensorFlow or PyTorch;

iii) Evaluate NLP models to fine-tune them for real-world datasets;

iv) Utilize pre-trained neural network models for specific tasks, such as image classification or natural language processing;

v) Critically assess the performance of AI models and applications;

vi) Work independently and in collaboration with colleagues or under the guidance of a facilitator in a project involving Artificial Intelligence.

Module 14: Virtual Reality, Augmented Reality, and Emerging Technologies for Education

Indicative content

This module aims to introduce emerging technologies to education, mainly virtual and augmented reality, as well as other emerging technologies. In Virtual Reality, it introduces Virtual Reality, Three hundred and sixty–degree images and videos, and Classification of Virtual Reality systems. The module will also discuss VR in education, Teacher preparation and new teacher training, Virtual tools for learning in the real world and creating additional VR content. It also discusses augmented reality in education, AR development in education: leading the way of innovation or being left behind, Augmented Reality apps for education,

Augmented Reality technology in education, Open research issues and the future of VR and AR. Finally, the module discusses other Emerging technologies for Education: Mobile learning, Adaptive Learning, and 3D Printing.

Learning Outcomes

By the end of this module, students should be able to:

i) Describe various forms of realities and realities systems;

ii) Evaluate VR and AR technology for specific contexts of use;

iii) Apply extended realities (virtual and augmented) concepts;

iv) Design principles to create XR applications;

v) Explain concepts related to applications of emerging technologies for education;

vi) Analyze complex issues related to virtual reality and emerging technologies for education;

vii) Engage in collaborative virtual reality projects to communicate with peers from different countries, and develop skills for working in global teams.

1.9.5 Biology modules

Brief description of the aims

The Bachelor of Education in Biology is a four-year programme aims at producing qualified biology secondary school teachers capable of demonstrating the mastery of biology content knowledge, practical and professional skills, and attitudes for teachers. This ensures that the candidate is fully competent to respond to the demands of biology secondary school teachers. It is designed in a way that gives a student the opportunity to explore learning materials to enhance conceptual understanding and practical skills, and to make scientific research responding to challenging daily life situations. Graduates from the programme will have to successfully complete 13 biology modules in addition to the general modules of education, specific teaching method as well as school attachment.

Learning outcomes

By the end of this programme, student-teachers are expected to:

i) Display a strong understanding and mastery of the content proposed in biology modules of this programme;

ii) Use acquired knowledge, skills and attitudes in the teaching and learning of biology at secondary school level;

iii) Demonstrate ability to connect biology in daily life and in the implementation of the curriculum;

iv) Use the knowledge and skills acquired in biology modules to solve problems encountered in life;

v) Organize practical sessions and support students to conduct experiments and practical works proposed in the school biology syllabus;

vi) Contribute to socio-economic development using knowledge, skills and attitudes gained from modules of this programme;

vii) Integrate knowledge and skills acquired in this programme for teaching biology.

Table 8: **Distribution of Biology modules**

S/N	Module	Year of study	Semester	Credits
1	Evolutionary and Cell Biology	1	1	15
2	Genetics	1	2	10
3	Animal Diversity	1	2	10
4	Fungi & Plant Diversity	2	1	10
5	Plant Anatomy and Physiology	2	1	10
6	Animal Anatomy	2	2	10
7	Animal Physiology	2	2	10
8	Parasitology	3	1	10
9	Molecular Biology and Biotechnology	3	1	10
10	Developmental Biology	3	2	10
11	Human Biology and Nutrition	3	2	10
12	Microbiology and Immunopathology	4	1	10
13	Ecology and Animal Behavior	4	1	15
Total credits				**140**

Module 1: Evolutionary and Cell Biology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of the evolution of life and cell biology. It focuses on origin and evolution of life on earth, theories of life evolution (Creationism, theory of Panspermia, Chemical evolution of life-auto biogenesis, organic evolution theories), characteristics of life, levels of biological organization, history of the cell theory, unifying theories in study of life; biomolecules (types of macromolecules and chemical identification of macromolecules); tools in cell Biology (microscopy and cell fractionation); Animal and plant cell structure and function (Cell parts: cell membrane, cytoplasm, nuclear architecture, cell organelles); cell respiration; cell cycle (Interphase and mitosis, meiosis; cell communication, signaling, apoptosis, tumors, and cancers).

Learning outcomes

By the end of this module, the students should be able to:

i) Discuss the evolution of life on Earth and its origin;

ii) Investigate different macromolecules of life;

iii) Manipulate microscope in the study of the cell and describe different types of cells;

iv) Analyze types of cells and cell organelles maintenance of life;

v) Use different software to explain functions of cell parts, cell organelles and the mechanism of cellular respiration;

vi) Use diagrams and software to explain the cell cycle;

vii) Distinguish mitosis from meiosis;

viii) Explain the relationship between cell division, cell signaling and communication, tumor formation and cancers;

ix) Demonstrate positive attitudes related to the study of the origin and evolution of life as well as cell biology.

Module 2: Genetics

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of genetics and inheritance. It covers genetics concepts (gene, allele, dominance/recessive gene or allele, character, phenotype, genotype, monohybridism, dihybridism); Mendelian genetics; Test cross; Gene linkage, Recombination, and genetic distance; supplements to Mendel's experiments (Incomplete dominance; Co-dominance); Lethal genes; Poly-allelism; Pleiotropy; Polygeny; Genes interaction; Sex-linked heredity; molecular genetics (evidence of DNA as genetic material; Structure of nucleic acids; DNA replication; Proteins biosynthesis); mutations ; population genetics (Hardy-Weinberg law of equilibrium and its applications); types of variations; applications of Genetics; practical exercises related to genetics: monohybridism, and dihybridism and of Hardy-Weinberg law.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain principles and laws of Mendelian genetics and their supplements;

ii) Use diagrams and ICT to explain the structure of nucleic acids and their mechanisms (replication, transcription, and protein biosynthesis);

iii) Use a Punnett Square to analyze and interpret data in relation to phenotypes and genotypes;

iv) Apply Hardy-Weinberg law in calculating gene (allele, genotypic and phenotypic) frequencies in a population;

v) Explain types of variation and speciation;

vi) Describe the process of meiosis in gene segregation using software;

vii) Solve problems using Mendelian laws of genetic inheritance;

viii) Appreciate aspects pertaining to Genetics.

Module 3: Animal Diversity

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of animal diversity. It focuses on phylogeny of animals from protozoans to chordates; taxonomy of animals and dichotomous keys of animals' classification; characteristics (support, locomotion, feeding, digestion, circulation, communication, osmoregulation, gaseous exchange, reproduction, and sensory operations) lifestyles and ecology of each animal phyla (Protozoa, Porifera, Cnidaria, Platyhelminthes, Nematoda, Annelida, Arthropoda, Mollusca, Echinodermata; vertebrates); origin and evolution of chordates; Economic zoology (Aquaculture, Sericulture; Apiculture; Lac culture; Taxidermy; Animal farm management practices); collection of specimens, techniques for animal sampling and collection of animals in different habitat; use of dichotomous keys to classify animals; preserving animals, rearing invertebrates for economic purposes.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain animal heterogeneity and phylogeny of animals from protozoans to chordates;

ii) Use ICT to study animals especially non-available animal species;

iii) Classify animals using dichotomous keys of animals' classification;

iv) Characterize each animal phyla from invertebrates in accordance with morphological, feeding, locomotory, reproductive, and excretory and ecological characteristics;

v) Link animal descriptions to their habitat;

vi) Compare major invertebrate and vertebrate phyla;

vii) Explain how animals are economically important.

Module 4: Fungi & Plant Diversity

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of fungi, plants, and lichens. It focuses on morphological and reproductive characteristics, classification and nomenclature, ecology, and economic importance; general concepts and principles of plant classification and of different groups of plants and fungi; principles of plant classification (artificial, natural, and molecular classifications; dichotomous keys); plant nomenclature; morphological characteristics, classification, reproduction, life cycle and ecology of fungi, plants (non-flowering, gymnosperms and angiosperms) and lichens; history of plant use and economic importance of plants (crop plants, medicinal plants; food plants and food adjuncts; spices and aromates); preparation of herbaria and classification of plants using dichotomous key of classification; and observations of plant, fungi, and lichens features.

Learning outcomes

By the end of this module, the students should be able to:

i) Analyze different plant specimens to establish heterogeneity and the evolution from the algae to the angiosperms;

ii) Differentiate non-flowering plants, gymnosperms, angiosperms, fungi, and lichens;

iii) Describe the ecological and economic importance of plants, fungi, and lichens;

iv) Explain principles of plants and fungi classification and their nomenclature;

v) Classify plant species and plant organs using the dichotomous key of classification;

vi) Establish ecological relationship to plant characteristics;

vii) Produce a scientific report on the plant diversity after the field visit.

Module 5: Plant Anatomy and Physiology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of plant anatomy and physiology. It focuses on plant organs (morphological variations of the vegetative parts of plant); plant tissues and structure (roots, stems, shoots; leaves, fruits, and seeds); totipotency and plant tissues differentiation; role of specific vegetative parts of plant; principles of plant responses to their environment (limiting factors and interactions); plant nutrition and transport water, mineral salts and of organic substances; mechanism of transpiration and photosynthesis; mechanism of photorespiration, C3, C4 and CAM photosynthetic pathways; mechanism and role of respiration in the metabolism of plants; Seed germination physiology and plant hormones.

Learning outcomes

By the end of this module, the students should be able to:

i) Distinguish between different plant tissues;

ii) Relate plant tissues structures to their function;

iii) Explain the mechanism of water absorption and mineral nutrition;

iv) Investigate the conditions of extraction of chlorophyll, proving the necessity of sunlight, CO_2, chlorophyll, and oxygen in the photosynthesis for the mechanism of photosynthesis and different plant responses;

v) Prepare anatomical sections in various plant organs;

vi) Describe tissues under light microscope;

vii) Carry out practical experiments related to transport in plants, plant responses (tropism, nactic movement) transpiration, seed germination, dissection of flower, roots, and stem;

viii) Appreciate the significance of plant tissues, transpiration, and photosynthesis;

ix) Produce a scientific report on plant anatomy and physiology after practical work.

Module 6: Animal Anatomy

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of animal tissues, organs, and systems anatomy. It considers the main parts of organisms, morphological similarities and differences among animals; the body cavities and principal arrangement of other anatomical structures; epithelial tissues, cartilage tissue, muscle tissue, connective tissue, nervous tissue; anatomy and histology of sense organs; anatomy and histology of the integument and skin structures, muscular, skeletal, cardiovascular, respiratory, immune, endocrine, urogenital, and digestive systems; dissection of fish, frog, bird, and rabbit.

Learning outcomes

By the end of this module, the students should be able to:

i) Describe the anatomy of animal tissues and organs;

ii) Explain anatomy of different animal systems including reproductive system, excretory, integumentary, muscular-skeleton, endocrine and cardiovascular systems;

iii) Elaborate on different types of tissues and organs;

iv) Discuss the morphological similarities and differences among animals;

v) Distinguish animals based on the anatomical aspects;

vi) Dissect different animals including invertebrates and vertebrates to enhance conceptual understanding and practical skills.

Module 7: Animal Physiology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of animal physiology. It covers respiration and gas exchange in animals, homeostasis in animals, temperature regulation in animal life, functioning of the cardio-vascular, process of food digestion and energy metabolism, osmotic and ionic regulation in aquatic and terrestrial animals , physiology of the nervous and hormonal systems in animals, excretion in invertebrates and vertebrates, functioning of sense organs, and practical experiments in physiology of a frog, identification of human blood cell type, observation of animal tissues, measuring respiration and respiratory quotients by using respirometer.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain different biological processes including feeding, digestion, respiration, excretion, transport of substances within organisms' body;

ii) Explain homeostasis and its role in feedback mechanism;

iii) Compare the physiology of the nervous system with the one of the hormonal systems;

iv) Explain the functionality of muscles with emphasis on the sliding filament theory of muscle contraction;

v) Explain the nature of physiological processes and their control of animals;

vi) Explain how an animal eye functions;

vii) Use software (animation, simulation) and other appropriate resources to explain the functionality of the cardio-vascular system.

Module 8: Parasitology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of parasites of major importance in Africa. It focuses on introduction to general parasitology, association between parasites and host, effect of parasites on the host, basic concepts in medical parasitology, symbiotic relationship in animals; introduction to epidemiology, nature of parasitic life (advantages and disadvantages); morphology, occurrence, medical concern, reproduction, transmission, pathogenesis, diagnosis, treatment, prevention & control of vertebrate parasites (malaria, *trypanosoma*, *Schistosoma* of humans, *Fasciola* of sheep, goats and cows, *Wuchereria*, *Onchocercus*, Guinea worm; cestodes of man and domestic animals, geohelminths), Pathogen evasion mechanisms; dissecting insects to identify microscopic parasites using microscopy and observe ectoparasites and endo-parasites of fish.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain concepts of general parasitology and effects of parasites on the host;

ii) Explain the symbiotic relationships in animals and association between parasites and hosts;

iii) Describe prevalence patterns of infectious diseases and helminthiases in the African continent;

iv) Criticize the importance of hosts in parasite life cycles;

v) Explain how vaccines are produced and used in disease intervention;

vi) Identify preventive macro- and microscopic parasites that are common in Africa;

vii) Examine animals for the presence of parasites;

viii) Design a control programme that is effective against a given parasite.

Module 9: Molecular Biology and Biotechnology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of molecular biology and biotechnology. It focuses nucleic acids and DNA replication; gene expression (transcription, translation and gene regulation in prokaryotes and eukaryotes); techniques for gene analysis (extraction and purification of nucleic acids and proteins, gel electrophoresis, PCR, Blot techniques, DNA sequencing); microarrays; recombinant DNA gene technology; recombinant proteins and their uses; bioinformatics; enzymes (nomenclature, characteristics,

importance, and enzyme technology); tissues culture (micropropagation, morphogenesis in vitro, somatic hybridization, anther and microspores culture, restoration tissues, animal cells culture); genetically modified organisms (transgenic animals and plants, plant tumors, applications and implications of recombinant DNA technology).

Learning outcomes

By the end of this module, the students should be able to:

i) Explain how the gene functions, expresses, and regulates information;

ii) Explain DNA recombination and Genetically Modified Organisms (GMOs);

iii) Apply molecular biology techniques to modify living organism for specific use;

iv) Describe various applications of molecular biology and biotechnology especially in forensic analysis, medicine, environmental monitoring, and crops' improvement;

v) Isolate nucleic acids, proteins, and plasmids;

vi) Manipulate the purified DNA for specific use;

vii) Analyze sequences of isolated DNA and its products before their application;

viii) Discuss the positive and negative implications of biotechnology on humanity;

ix) Evaluate the ethical aspect of the use of Genetically Modified Organisms (GMOs).

Module 10: Developmental Biology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of the content related to developmental biology. It focuses on overview of animal and plant development, internal and external factors of development and growth areas, principles of development, egg organization and origins of cell differentiation, origin and specification of germ layers/embryonic membranes, embryonic developmental stages and organogenesis in plants and animals, regulation of organs development and senescence in higher plants, growth rhythmic in higher plants, pollen and embryo sac formation, polarity of organs, plant propagation.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain basic principles, mechanisms, and events during animal and plant development;

ii) Use software to explain developmental processes from a fertilized egg to an adult animal and plant;

iii) Discuss origin and specification of germ layers, including roles and nature of induction during development and organ formation;

iv) Investigate the effect on endogenous and synthetic regulators on plants;

v) Describe mechanisms of development of higher organisms;

vi) Evaluate the senescence area on aging leaves and the modification;

vii) Discuss embryonic development stages from the prepared slides;

viii) Undertake dissection and temporary whole mount preparation of chick embryos.

Module 11: Human Biology and Nutrition

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of human evolution, human biology, social hazards, and human nutrition. It focuses on the origin and ancestry of man, time scale of human evolution, shared features and differences between man and apes, hominid evolution, characteristics of hominid species, time frame of evolution of hominid species, social hazards (smoking, alcoholism, drug abuse); Effect of smoking, passive smoking, and effect of smoking by pregnant women on their fetuses, sexually transmitted diseases, and measures of prevention, diets and nutrition, nutritional disorders, anatomy and function of male and female reproductive system, fertilization, embryonic development, organogenesis, physiological changes in females during pregnancy, labor and parturition, parental care, congenital malformation, fertility, sterility, in vitro fertilization, and methods of birth control.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the perspective of human origin and ancestry, time frame of evolution of hominid species;

ii) Discuss key anatomical similarities and differences between the great apes and humans;

iii) Support principal anatomical changes in primates necessary for adaptation to fully bipedal locomotion and link primates' evolution to human origins;

iv) Identify the adverse effects of smoking, alcoholism, drug abuse;

v) Explain transmission, consequence, and prevention of sexually transmitted diseases including HIV-AIDS;

vi) Demonstrate how a balanced diet is designed;

vii) Advise on the common nutritional disorders, and their control;

viii) Describe the anatomy and physiology of male and female reproductive organs, physiology of reproduction, and parental care;

ix) Differentiate between macronutrients and micronutrients in human nutrition.

Module 12: Microbiology and Immunopathology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of microbiology and pathology. It focuses on history of microbiology, nature of microorganisms and their general characteristics, microscopy and staining, prokaryotic and eukaryotic microorganisms, viruses and bacterial anatomy, bacterial culture and growth, and

isolation; measurement of microbial growth by direct and indirect method, microbial pathogen and disease (theory of diseases, patterns of diseases; disease incidence and prevalence; characteristics of the pathogen and pathogenesis; evolution of harmful strains; treatment and prevention of diseases; immune system, immunotherapy and immunization, control of microorganisms, pathogen evasion mechanisms, biochemical analysis of microbes, diagnostic analysis.

Learning outcomes

By the end of this module, the students should be able to**:**

i) Describe the nature, types and the characteristics of microorganisms and their classification;

ii) Use different techniques to describe and explain structural diversity and the basic criteria used in the classification of microorganisms;

iii) Interpret curves illustrating the growth of microorganisms;

iv) Explain the physiology of microorganisms and of major infectious diseases;

v) Explain the structure and functioning of the immune system;

vi) Discuss the methods of transmission of microbial diseases;

vii) Analyze epidemiological data;

viii) Suggest ways to control and prevent the spread of the diseases;

ix) Discuss the microbial activity in the environment, their importance in biotechnology and in health and diseases.

Module 13: Ecology and animal behavior

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of abiotic and biotic interactions, environmental problems, and their solution. It focuses on general concepts of ecology and different levels of biological integration, structure and organization of natural ecosystems; symbiotic relationships, Productivity, and energy flow in an ecosystem; biogeochemical cycles; ecosystem functions and services; population growth and life history; biotic community structure and dynamics; qualitative and quantitative study of plant and animal diversity (sampling techniques, diversity indices, release, and recapture); pollution and conservation of natural resources; recyclable wastes, negative impact of non - biodegradable wastes and ecotoxicology; terrestrial and aquatic African ecosystems with reference to Rwanda; conservation and exploitation natural reserves.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain concepts used in ecology such as biotope, population, community, and ecosystem ecology;

ii) Apply sampling techniques and quantitative methods in population, community, and ecosystem study;

iii) Analyze world biomes with emphasis on Africa and Rwanda;

iv) Explain biogeochemical cycles in specific ecosystems and consequences of the dysfunction of the biogeochemical cycles on the functioning of the ecosystems;

v) Explain the impact of anthropogenic activities on biotic communities and ecosystems;

vi) Describe types of animal behavior and explain behavior as a survival strategy of animals;

vii) Apply appropriate methods for protection and conservation of natural resources in Rwanda;

viii) Use real data and simulations to predict the evolution of population growth and dynamics of a biotic community.

1.9.6 Geography modules

Brief Description of aims

Geography encompasses all phenomena of the world we live in. The purpose of studying this programme is to ensure that qualifying student teachers of geography acquire the competencies that will enable them to teach Geography modules and involve students in learning/teaching activities. This programme helps the student teacher to acquire competencies enabling them to understand the interaction of human, physical environment and solve the daily problems related to the teaching and learning of Geography in secondary schools. They will be also equipped with the practical and techniques skills to apply in teaching and learning processes in secondary schools.

Learning Outcomes

By the end of this programme, students should be able to:

i) Assess the current national and global demographic and economic aspects and demonstrate their concerns about their social-economic impacts,

ii) Describe the internal and external processes and dynamics that contribute to the reshaping of the earth's structure,

iii) Identify the earth's dynamics and their relationships with vegetation, rocks and minerals, landforms, drainage, and climate,

iv) Evaluate the process of rural and urban spaces transformation, settlement, and the threats to their planning and development,

v) Analyze the local and global environment and engage in reflective thinking about environmental problems and sustainability and the policy instruments available to address them,

vi) Use appropriate methods and procedures to conduct a fieldwork and locate objects on the earth's surface,

vii) Suggest appropriate solutions to the identified problems based on empirical findings.

Table 9: Distribution of Geography modules

S/N	Module	Year of study	Semester	Credits
1	Human Geography I	1	1	15
2	Physical Geography I	1	2	10
3	Human Geography II	1	2	10
4	Physical Geography II	2	1	10
5	Geography of Rwanda	2	1	10
6	Environmental Geography	2	2	10
7	Geography of continents	2	2	10
8	Cartography and photo interpretation	3	1	10
9	GIS and Remote Sensing	3	1	10
10	Applied Physical Geography	3	2	15
11	Regional Planning and natural resources management	4	1	10
12	Rural geography	4	1	10
13	Urban Geography	4	1	10
Total credits				**140**

Module 1: Human Geography I

Indicative content

This module aims at giving to the students a basic knowledge, skills, and attitudes to develop a deeper understanding of geography key concepts, its historical evolution and the interaction between man and environment. It also explores the main aspects of political geography and population geography. It describes the concept of a state and its evolution, size, country/state boundaries while in population geography the emphasis is on population structure, size, density, growth and spatial distribution, population theories and policies, migration, urbanization, and case studies of population facts in developing and developed countries.

Learning outcomes

By the end of this module, students should be able to:

i) Explain geography relatyed concepts and its evolution;

ii) Analyze the status of governments, the boundaries and subdivisions of states and nations and the ways that people and governments control and dispute space;

iii) Apply the techniques of measuring demographic processes using the main demographic dynamics;

iv) Describe main demographic models and theories;

v) Establish relationships between population growth and food supply;

vi) Explain processes of urbanization and rural development from demographic perspective;

vii) Discuss population policies and their impact on population dynamics.

Module 2: Physical Geography I

Indicative content

This module aims at providing to the students, deep knowledge and understanding of the universe and galaxies, notions of mineralogy, petrography, stratigraphy. It deals specifically with internal geodynamics of the earth as well as orogenesis. It provides a deep description of the external geodynamics of the earth. Additionally, this module provides theoretical and practical knowledge and skills of the field works.

Learning outcomes

By the end of this module, students should be able to:

i) Describe types of stars, galaxies and universe;

ii) Explain minerals and rocks as well as their physical and chemical properties;

iii) Identify economic benefits from minerals, rocks and landforms;

iv) Analyze internal structure and composition of the earth;

v) Describe internal and external geodynamics;

vi) Use effectively various teaching resources including geographical documents, maps, illustrations, internet, audio-vision documents and field data in teaching and learning processes;

vii) Use cost effective resources for learning and teaching Geology and Geomorphology.

Module 3: Human Geography II

Indicative content

This module exposes the main aspects and approaches of economic geography including different economic theories and systems. It discusses natural resources, the sectors of activities (primary, secondary, and tertiary), the consumption of goods and services and their spatial dimensions. It also describes the main economic activities that are agriculture, industry, transport, tourism, and international trade. The module presents also the main issues related to contemporary issues and globalization since the modernization era with special emphasis on third world countries.

Learning outcomes

By the end of this module, students should be able to:

i) Discribe the sectors of economic activities, main economic systems, and factors of production;

ii) Explain the keys aspects of economic geography in the Rwandan context;

iii) Analyze the factors, advantages and disadvantages of regional and international integration and trade;

iv) Apply the acquired knowledge and skills to solve economic problems and challenges at local, regional and national levels;

v) Use the acquired knowledge and skills from the global dynamics for sustainable development;

vi) Show the role of the main political orientations in the development of a country with a case study of Rwanda;

vii) Apply appropriate educational skills and various teaching resources including geographical documents, maps, illustrations, internet, audio-vision documents to effectively teach human geography II.

Module 4: Physical Geography II

Indicative content

This module aims at providing to the students the basic knowledge of atmosphere and earth's movements and their consequences. It describes different elements of weather/climate. It also deals with soil forming factors and processes, physical and chemical properties of soils as well as soil catena and profile. It classifies soils at different scales and discusses the soil erosion and appropriate measures to deal with it as well as the economic importance of soils.

Learning outcomes

By the end of this module, students should be able to:

i) Show the position of the earth in the solar system and explain earth's movements and their consequences;

ii) Analyze the structure, composition and importance of the atmosphere;

iii) Describe different elements and factors of weather/climate and their interactions with other natural aspects;

iv) Describe the soil formation processes, soil components, properties and types as well as soil catena and profile;

v) Discuss different types of soil erosion and suggest the most appropriate measures to deal with it;

vi) Classify soils at different scales;

vii) Use cost effective resources for learning and teaching climatology and soil science.

Module 5: Geography of Rwanda

Indicative content

This module aims at providing deep knowledge and understanding of physical aspects of Rwanda such as geological background, rocks, topography and landforms, climate, drainage, soils, and vegetation. It also focuses on the study of population, natural resources, the sectors of activities (primary, secondary and tertiary including agriculture, industry and mining, transport and communication, tourism, and the international trade, the consumption of goods and services and their spatial dimensions and variations. The module provides enough information on regional integration and international cooperation of Rwanda with other countries. It may have a look at the hindrance of Rwandan development and future perspectives of the country.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the physical aspects of Rwanda including geological background, rocks, topography and landforms, climate, drainage, soils; and vegetation;

ii) Identify the natural resources available in Rwanda and discuss their economic importance to the country;

iii) Describe Rwandan population and the techniques of measuring the demographic processes in Rwanda;

iv) Describe the main types of economic activities and their impact on the development of a country;

v) Analyze the existing interaction between different physical, human and economic aspects of Rwanda;

vi) Show the importance of political integration from economic/trade integration of Rwanda;

vii) Apply cost effective resources for learning and teaching geography of Rwanda.

Module 6: Environmental Geography

Indicative content

This module aims at providing to the students' deep knowledge and understanding of the main components of the environment, ecosystems, biomes of the world and their relationship. It helps the learners to understand biogeochemical cycles, problems of environmental degradation (pollution, climate change, ozone depletion, deforestation, desertification, hazardous wastes, natural and human made disasters) and best ways of addressing them. The module also deals with water resources and integrated water resource management (IWRM); environmental preservation for sustainable development; environmental education as well as environmental policies and guidelines.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of environment, ecosystems and biomes;

ii) Identify the main components of the environment and their relationships;

iii) Explain the main causes and consequences of environmental degradation resulting from pollution, climate change, deforestation, desertification, hazardous wastes, natural and human activities driven disasters) and suggest the best ways of addressing them;

iv) Suggest the best practices for environmental protection and conservation for sustainable development;

v) Analyse critically various policies, strategies and international conventions of environmental conservation and their implementation;

vi) Apply the cost-effective materials in teaching environmental geography.

Module 7: Geography of Continents

Indicative content

This module aims at giving students in-depth knowledge of the seven continents of the world that are Africa, Asia, Oceania, North America, South America, Europe, and Antarctica. For each continent, it explores the physical, human, and economic aspects, and regional and international integrations of different countries within a specific continent.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the seven continents of the world and their countries on the world map;

ii) Analyze physical and human characteristics of the world continents;

iii) Identify the particularities of each continent compared to the others;

iv) Analyze both relationship and cooperation between the continents;

v) Explain the process of settlement and population characteristics of the world continents;

vi) Explain the success factors of specific continents and causes of drawbacks of others;

vii) Apply pedagogical skills in the teaching and learning of Geography of continents;

Module 8: Cartography and Photo Interpretation

Indicative content

This module helps the students to have basic knowledge of concepts and principles of cartography, map symbols, geographic coordinates, projection systems, and mapping including reading, analysis, interpreting a map and using different elements in making a map.

It provides the techniques and methods to identify and interpret physical and human features on a photograph and convert a photograph into a map.

Learning outcomes

By the end of this module, students should be able to:

i) Apply cartography principles in preparation, interpretation and analysis of maps;
ii) Differentiate mapping and aerial photography interpretation;
iii) Interpret an aerial photograph;
iv) Display various information from a map and an aerial photograph;
v) Visualize on a map the physical and human features extracted from an aerial photograph.

Module 9: GIS and Remote Sensing

Indicative content

This module aims at providing to the students' basic knowledge of key concepts and principles of Remote Sensing, characteristics of aerial photographs, taking aerial photographs, emulsions and filters, geometric properties of aerial photographs, stereoscopy, and interpretation of features from aerial photographs, characteristics of remote sensing, thermal infrared and RADAR imagery, Earth resource monitoring satellites and Remote sensing application. It also provides to the students' basic principles and applications of GIS including ArcMap menus, working with ArcMap (shapefiles, datasets, layers), map projection and coordinate system, map data and layout view and tools, editing and graphic map elements.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the key concepts and principles of Remote Sensing and GIS;
ii) Prepare a digital map using appropriate software;
iii) Interpret digital map and satellite images;
iv) Extract various maps from vector data;
v) Display various information from satellite images;
vi) Visualize through GIS and satellite images, the spatial distribution of natural and human features.
vii) Teach GIS and Remote sensing using appropriate methods and techniques.

Module 10: Applied Physical Geography

Indicative content

This module includes climatology in which the students will study the primary (general circulation: tropical midi-latitude and polar circulation), secondary (monsoon winds) and

tertiary (periodical and non-periodical winds) atmospheric circulation, El Nino and La Nina, Jet Stream, air masses, frontogenesis and types of fronts and classification of climates as well as Koppen classification. The second part deals with Geomorphology in which the focus will be made mainly on the influence (impacts) of the structure on the types of relief (landforms), in aclinal and monocline structure, in folded structure, in faulted structures, in crystalline rocks and in volcanic region. It will put emphasis on the relationship between the hydrography and the geological/morphological structure. In this module the topics like limestone features (karst topography), morpho-climatic systems (regions), glacial, periglacial, desert, intertropical & tropical and coastal landforms will be covered. The hydrology will be also studied in this module with focus on main sources of groundwater (rivers, lakes, seas and oceans), water budget/water balance and statistical analysis of different sources of water.

Learning outcomes

By the end of this module, students should be able to:

i) Explain primary, secondary and tertiary atmospheric circulation;

ii) Describe El Nino and La Nina, Jet Stream, air masses, frontogenesis and types of fronts;

iii) Classify different types of climate;

iv) Describe landforms based on their climatic conditions;

v) Explain different types of relief (landforms) which can be seen in aclinal and monocline structure, in folded structure, in faulted structures, in crystalline rocks and in volcanic region;

vi) Analyze the main sources of water;

vii) Calculate water budget of selected area;

Viii) Analyse statistically different water sources;

Module 11: Regional Planning and Natural Resources Management

Indicative content

This module aims to equip students with the basic knowledge about regional planning in the context of sustainable development. The module tries to find out the importance of regional planning, the actors involved in the process of development. It analyzes the existing natural resources in different parts of the country and their contribution to the economy. It also presents the approaches of regional planning at different spatial scales, theories and models of regional planning, regional planning for sustainable development (housing, transport, natural resources management, green projects, etc.). This module refers to the case studies of regional planning in developed and developing countries, theories of the development, indicators of the development, obstacles to the development and their solutions, and various natural resources and their effective management.

Learning outcomes

By the end of this module, students should be able to:

i) Explain what regional planning and development is;

ii) Outline the regional planning principles and guidelines;

iii) Suggest appropriate responses to resolve problems related to regional planning and development of specific areas;

iv) Advise local entities on land use and planning issues;

v) Take informed decisions on sustainable land use and spatial planning in places where they live;

vi) Analyze the existing natural resources in different parts of the country and their contribution to the economy.

vii) Assess the process and challenges of exploitation;

viii) Use effectively natural resources;

Module 12: Rural Geography

Indicative content

This module focuses on characteristics of rural areas, rural problems in developing and developed countries. It deals with the rural development models and the role of rural activities in the process of development with case studies of selected developing and developed countries. This module also focuses on the origin, types, characteristics, factors, advantages, and disadvantages of rural settlements. Furthermore, it analyzes the fundamental principles of rural development from the case studies of some rural areas of the world with a particular focus on Rwanda.

Learning outcomes

By the end of this module, students should be able to:

i) Identify characteristics of rural areas;

ii) Describe different types of rural settlements;

iii) Identify current challenges that affect the global rural areas especially in developing countries;

iv) Describe the process of rural development;

v) Explain the implementation of rural plans for development;

vi) Analyze the state of poverty in Rwanda;

vii) Identify priority areas for poverty reduction in Rwanda;

viii) Suggest strategies to address issues hindering rural development;

ix) Teach rural geography using appropriate methods, techniques, and resources.

Module 13. Urban Geography

Indicative content

The module helps students to grasp the importance of urban environments, urbanization trends and problems in both developed and developing countries. The module focuses on the process of urbanization, and development of urban settlements and urban models. It also

deals with major problems of urban centers and their solutions. It presents economic activities and relationships between urban and peri-urban areas. A special emphasis is put on urban planning, sustainable cities and neighborhoods, urbanization of Rwanda and cities system and transformation.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the process of urbanization development;

ii) Describe the process of urbanization in developed and developing worlds;

iii) Identify the growth and distribution of the main urban centers in the world;

iv) Assess the challenges of urbanization in different parts of the world;

v) Describe models of urban development and urban planning;

vi) Analyze from the case study of Kigali, the contribution of cities to the development of a country

vii) Suggest the strategies to make cities sustainable;

viii) Teach urban geography using appropriate methods, techniques, and resources.

1.9.7 History modules

Brief description of aims

This variety of modules will help the student-teacher to develop competences of history while providing a critical understanding of social, economic and political aspects of different societies. History modules will tackle historical concepts and methods. Historical periods such as Antiquity, Middle Ages, Modern Times and Contemporary history will help the student teachers to acquire not only historical procedural knowledge and skills but also values. History of different places including Rwanda, Africa, Asia, America, Australia and Europe will be analyzed. In conjunction with educational modules, history student teachers will be equipped with knowledge and skills which will help them to effectively teach history in secondary schools.

Learning Outcomes

At the end of this programme, students will be able to:

i) Demonstrate a systematic knowledge and understanding of a wide range of historical topics related to different periods and places;

ii) Collect historical sources;

iii) Apply internal and external criticism to primary and secondary sources of historical information;

iv) Propose own strategies for fighting against discrimination and genocide denial;

v) Present historical information in a variety of formats to a diverse audience.

Table 10: Distribution of History modules

S/N	Module	Year of study	Semester	Credits
1	Introduction to History	1	1	15
2	Ancient History of Rwanda	1	2	10
3	History of Africa I	1	2	10
4	World History I	2	1	10
5	Contemporary History of Rwanda	2	1	10
6	World History II	2	2	10
7	History of Africa II	2	2	10
8	Great Revolutions and Wars	3	1	10
9	Issues in Socio-Economic History of Rwanda	3	1	10
10	Media and History	3	2	10
11	Comparative History of Genocide	3	2	10
12	History of International Relations	4	1	15
13	Issues in Contemporary History	4	1	10
Total credits				**140**

Module 1: Introduction to History

Indicative content

This module aims at introducing students to key concepts used in history (prehistory, history, historiography, historical criticism, historical significance, change and continuity, cause and effect, evidence, historical perspective) and highlights the importance of studying history. This module also focuses on challenges and opportunities of historical sources (oral sources, written sources, electronic sources, archaeological sources). Subfields of history are underlined (social history, economic history, political history, environmental history, gender history, etc.). In this module, the importance of auxiliary science of history (sociology, geography, linguistics, paleography, epigraphy, numismatics, etc.) with a particular focus on archaeology is discussed. The module also gives an overview of main historical periods. Moreover, it analyzes theories (Great God Theory, Great Man Theory, Great People Theory, etc.) and methods of history (collecting evidence, internal and external criticism, writing a historical text).

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the importance of studying history;

ii) Critically analyze the main characteristics of the periods of history;

iii) Differentiate first order from second order concepts in history;

iv) Compare different theories of history;

v) Explain the advantages and disadvantages of various historical methods (collecting evidence, internal and external criticism on any historical document);

vi) Apply internal and external criticism to various sources of historical information.

Module 2: Ancient History of Rwanda

Indicative content

The module focuses on the importance of different types of sources of the history of Rwanda (oral, non-written, written, and audio-visual sources) the problems of Rwandan historiography, prehistoric industries in Rwanda, the settlement of the population in Rwanda, origin and expansion of Rwanda, and the civilization of Ancient Rwanda (political, economic, social, religious and artistic organization).

Learning outcomes

By the end of this module, students should be able to:

i) Explain the role of different types of sources of the history of Rwanda (*ubucurabwenge, ubwiru, ibisigo, ibyivugo, ibitekerezo*, songs, onomastic, palynology, archaeological sources, etc.) and their historical value;

ii) Use prehistoric industries of the history of Rwanda to deconstruct prejudices related to the settlement of the population in Rwanda;

iii) Analyze the problems of Rwandan historiography;

iv) Evaluate the achievements of Rwandan kings in the expansion of Rwanda;

v) Analyze different components of Rwandan ancient civilization;

vi) Present historical information on ancient history of Rwanda in a variety of formats to various audiences.

Module 3: History of Africa I

Indicative content

This module focuses on Africa before European domination. It comprises the following aspects of the history of Africa: the sources used to write the history of Africa, the prehistory, the Mediterranean Africa history before the coming of Islam, the empires of the Western Africa, the main kingdoms of central, eastern and southern Africa, and the relations between Europe and Africa between 1500 and 1800.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the sources of precolonial African history and their values;

ii) Analyze the civilization of African empires and kingdoms;

iii) Discuss the contribution of Islam on African continent;

iv) Use evidence from the role played by main African empires/kingdoms in Africa and their relations with other parts of the world to deconstruct prejudices on precolonial Africa;

v) Present historical texts on precolonial Africa in a variety of formats to various audiences.

Module 4: World History I

Indicative content

The module emphasizes Ancient Mediterranean civilizations (Mesopotamia, Egypt, Hebrew, Greece, the Roman Empire, Christian and Islamic religions); Asian civilizations (Persia, China, India and Japan), Pre-Columbian civilizations (Maya, Aztecs, Incas); their expansion and impact on the world.

Learning outcomes

By the end of this module, students should be able to:

i) Analyze the contributions of the Mediterranean, Asian and Pre-Columbian civilizations to intellectual, artistic, political, social and cultural change on human society;

ii) Conduct a defined research activity on ancient history;

iii) Apply historical methods to analyze documents related to ancient history;

iv) Present historical information on ancient history in a variety of formats to various audiences.

Moule 5: Contemporary History of Rwanda

Indicative content

The module of *Contemporary history of Rwanda* focuses on Rwanda from the mid-19th century up to now. It deals with European exploration of Rwanda, reactions of Rwandans to European presence, German rule in Rwanda (1897-1916), establishment of missionaries in Rwanda and its impact on Rwandan society, the causes and effects of the First and Second World Wars on Rwanda, Belgian administration in Rwanda and its impact on Rwandan society, the socio-political and economic changes of the 1950s and early 1960s; Post-colonial Rwanda: First republic, Second republic (achievements and challenges), the Liberation War, the genocide against the Tutsi, and the post-genocide changes.

Learning outcomes

By the end of this module, students should be able to:

i) Explain of the causes of European presence in Rwanda (missionaries, colonial masters);

ii) Evaluate the impacts/effects of colonial rule on Rwandan society;

iii) Use data to discuss the social, economic and political transformation of post-colonial Rwanda;

iv) Present historical information on contemporary history of Rwanda in a variety of formats to various audiences.

Module 6: World History II

Indicative content

The module focuses on the Middle Ages (early, high and Middle Ages) by describing Europe between the fall of Rome and the beginning of the Renaissance. It also deals with the modern times by discussing philosophical and political thoughts that shaped modern times (humanism, rationalism, Marxism, liberalism, neoliberalism, democracy, etc.). The module also discusses the contacts of Europe and the rest of the world, protestant and catholic reformation, and the age of Enlightenment). A specific attention is put on the modern history of some countries (Russia, USA, China, Korea, Japan, Turkey and Singapore). The module helps the students to understand how to use art-based forms to teach history.

Learning outcomes

By the end of this module, students should be able to:

i) Explain main events and changes of the medieval and modern societies;

ii) Assess the political, economic and intellectual developments in the medieval and modern periods;

iii) Present historical information on medieval and modern history by means of art-based forms and other diverse formats to various audiences.

Module 7: History of Africa II

Module description

The module *History of Africa II* deals with contemporary Africa. Thus, it tackles the invasion and the partition of Africa, the military conquests, the African responses to European presence, the colonial systems, the two World Wars and their consequences in Africa, the transformations of the continent during the colonization, the nationalism which led to the independence of Africa and the current changes and problems of the continent.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the causes, effects of exploration and partition of Africa;

ii) Describe the political, social and cultural transformations of Africa during colonization;

iii) Explain the process of decolonization;

iv) Critically analyze African challenges in the post-colonial period;

v) Propose solutions to African challenges;

vi) Present historical information on contemporary Africa in a variety of formats to various audiences.

Module 8: Great World Revolutions and Wars

Indicative content

The module aims at making students acquainted with great world contemporary events that occurred from the first half of 18th century. It includes great world revolutions (Industrial, American, French, Russian revolutions), economic crises, totalitarian regimes and the two world wars. It will help students to understand the interrelation and interdependence of those great world historical events from great revolutions to the end of the Second World War.

Learning outcomes

By the end of this module, students should be able to:

i) Explore the causes, course and effects of western revolutions and the two world wars;

ii) Comment on numerical data related to western revolutions, economic crisis and the two world wars;

iii) Discuss the rise, development and impact of dictatorial regimes on human society;

iv) Present works related to great wars and revolutions in a variety of formats to various audiences.

Module 9: Issues in Socio-Economic History of Rwanda

Indicative content

This module is intended to enable students to get knowledge about important issues in *Socio-Economic History of Rwanda*. Thus, it aims at analyzing the process and importance of barter trade, handcrafts, the role of agriculture and animal raising in traditional Rwanda. The module also discusses historical evolution of socio-economic institutions namely *ubuhake, uburetwa* and *ubukonde* and their impacts on Rwandan society. The role of colonial administration, first and second republics, and other actors such as Churches in socio-economic transformations will be discussed. The post-genocide changes will also be part of this module.

Learning outcomes

By the end of this module, students should be able to:

i) Describe socio-economic role of barter trade and other socio-economic institutions in ancient Rwanda;

ii) Describe traditional socio-economic activities practiced in ancient Rwanda;

iii) Deconstruct prejudices on social identities using knowledge on socio-economic institutions in Rwanda;

iv) Analyze the contribution of German, Belgian and the post-colonial regimes in socio-economic evolution of Rwanda;

v) Discuss the role of Muslim religion and Christian Churches in socio-economic evolution of Rwanda;

vi) Explain the post-genocide socio-economic transformation using data;

vii) Propose strategies to address socio-economic challenges of Rwandan society;

viii) Present historical information on socio-economic issues in the history of Rwanda in a variety of formats to various audiences.

Module 10: **Media and History**

Indicative content

The module *Media and History* aims at teaching students how the media as an academic field and as an industry influences the making of history and the historians' debates. It equips students with the ability to understand and use media as a source of history learning and teaching. It also enables them to understand the role of media in society. Therefore, it deals with film in history, photography in history, television in history, ICT, internet and social media in history, and the role of media in society.

Learning Outcomes

By the end of this module, students should be able to:

i) Discuss the role of media in the making of history;

ii) Use media for teaching and learning history;

iii) Explain methodological and empirical issues related to history narratives in the media;

iv) Critically analyze the role that the media played and continue to play in society today;

v) Present historical information on media and history in a variety of formats to various audiences.

Module 11: Comparative History of Genocides

Indicative content

This module aims at providing a deep understanding of the twentieth century genocides. It will help students to discuss Darwinian evolutionism, eugenics, racism, pseudoscience and prejudices from the 19th century. The module connects this cultural evolutionism to genocide and other mass crimes. It focuses on evolution and effects of different genocides such as the Herero genocide, the Cambodian genocide, the Holocaust, the genocide against Tutsi, the Bosnian genocide, and the ways of comparing those cases. The power of preconceived ideas, propaganda and mass media will be analysed through comparative history of genocide. The

module will also help students to understand why genocide is a sensitive topic to deal with in an educational setting.

Learning Outcomes

By the end of this module, students should be able to:

i) Describe the twentieth century genocides;

ii) Conduct documentary research on particular aspects of genocides;

iii) Demonstrate an understanding of the genesis and effects of the genocide against Tutsi;

iv) Critically analyze similarities and differences of various cases of genocides;

v) Present a project to fight against prejudices and genocide denial;

vi) Describe the challenges of teaching genocides as a sensitive topic.

Module 12: History of International Relations

Indicative content

This module is intended to enable students to get knowledge of factors influencing international relations, theories and systems of international relations from the creation of modern states up to now. These include the creation of modern states following the Westphalia Treaty, the Vienna Congress and its implications, Bismarck foreign policy and his alliance system, the formation of blocks, the Versailles peace treaty, the Cold War, and the world evolution after the fall of the Soviet empire in the context of globalization. North-South relations, new issues in international relations such as terrorism, drug trafficking) are also highlighted. A particular attention will also be paid to the historical evolution of international organizations (Eg: The League of Nations, the United Nations, the European Economic Community/European Union, the Nonaligend Movement, African Unity Organisation/African Union, East African Community, SADEC, NATO, ASEAN, BRICS, Arab League, the Francophonie, the Commonwealth organization), their structure, achievements, challenges and possible solutions.

Learning outcomes

By the end of this module, students should be able to:

i) Compare and contrast different theories of international relations;

ii) Explain different factors influencing history of international relations;

iii) Analyze different international problems on a historical perspective;

iv) Propose solutions to different international problems;

v) Discuss the bases and the legal foundations of international institutions;

vi) Present historical texts on history of international relations in a variety of formats to various audiences.

Module 14: Issues in Contemporary History

Indicative content

This module is intended to provide students with a deep understanding of major issues that have influenced the world and went at the center stage of contemporary history. These include**:** Pan African movements**;** Women and gender movements**;** Religion and social change; Diaspora experiences**;** Environment history and sustainable development.

Learning Outcomes

By the end of this module, students should be able to:

i) Describe the history of Pan African ideas and movements, women and gender history, religion and social change, diaspora experiences and environment history;

ii) Explain above mentioned issues using data;

iii) Critically identify problems related to above mentioned issues and propose own solutions;

iv) Present historical texts on history of international relations in a variety of formats to various audiences.

1.9.8 Economics modules

Brief description of aim

By the end of the programme, the learners will acquire sufficient knowledge and skills relative micro-economic and macroeconomics key concepts, techniques, and processes. Further, the graduate will have knowledge in calculus and statistical techniques that will enable him/her to analyze economic theories and models.

Learning outcomes

By the end of the programme, the learner shall be able to:

i) Explain macroeconomic concepts;

ii) Describe the microeconomic principles on different sectors of the economy and their impact on individuals, business, and society;

iii) Evaluate the effectiveness of economic policies,

iv) Assess the social and economic implications of economic policies;

v) Apply econometric techniques in interpreting economic relationships, testing economic hypotheses, and evaluating the validity of economic models;

vi) Use quantitative methods in analyzing economic data, making forecasts, and conducting economic research.

Table 11: Distribution of Economics modules

S/N	Module	Year of study	Semester	Credits
1	Principles of Economics	1	1	15
2	Microeconomics	1	2	10
3	Macroeconomics	1	2	10
4	Mathematics for Economists	2	1	20
5	Health Economics	2	2	10
6	Statistics for Economists	2	2	10
7	Public Sector Economics	3	1	10
8	International Economics	3	1	10
9	Introduction to Econometrics	3	2	15
10	Development Economics	4	1	10
11	Environment Economics	4	1	10
12	Labor Economics	4	1	10
Total credits				**140**

Module 1: Principles of Economics

Indicative content

The module of Principles of Economics introduces the learners to the field of economics. It covers a wide range of concepts that familiarize learners with economics and briefly discusses key economic mechanisms such as demand, supply, price determination, production, consumption, and the firm which constitute a major actor in economic activities. The module constitutes an entry point to the entire field of economics and introduces specialized topics such as microeconomics, macroeconomics, labor economics, health economics, development economics, international economics, etc.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key concepts in economics;

ii) Grasp economic mechanisms at the micro and macro level;

iii) Evaluate economic events and context in the light of acquire knowledge;

iv) Address challenges relative to production, consumption, and revenue redistribution;

v) Communicate effectively on different platforms that discuss economic principles.

Module 2: Mathematics for Economists

Indicative content

The purpose of this module is to provide the learner with relevant mathematical skills that will enable him/her to pursue advanced economic courses. The module starts by introducing fundamentals of mathematics for economists and is devised to enhance technical skills in algebra calculus, one variable calculus and optimization and multiple variable calculus and optimization. It will also cover an introduction to mathematical economics and applications, calculus of several variables and optimization, as well as linear algebra

Learning outcomes

By the end of this module, students should be able to**:**

i) Explain the basics of mathematics, linear algebra, one variable calculus and multivariable calculus;

ii) Compute the optimization of a given economic phenomena relative to consumption or production;

iii) Assess the current status of the economic factors of production and consumption and propose adequate models;

iv) Analyze the current economic performance to predict future economic performance using optimization calculus;

v) Work with others in solving economic performance puzzles and challenges.

Module 3: Statistics for Economists

Indicative content

The module of Statistics for Economists aims at endowing the learner with a necessary statistics background that prepares them for the advanced module of econometrics. It covers subjects including descriptive statistics, probability, statistical inference, regression analysis, time series, panel data analysis, and introduction to statistical software (R, Stata, Eviews)

Learning outcomes

By the end of this module, students should be able to**:**

i) Demonstrate an understanding of descriptive statistics, probability, inferential statistics, and regression analysis;

ii) Present results of the given statistical problems and exercise;

iii) Set hypothesis using existing dataset

iv) Test hypotheses using existing dataset;

v) Present statistical findings and their economic implications to both specialized and non-specialized audiences.

Module 4: Microeconomics

Indicative content

This module aims at equipping learners with a broad knowledge about economic behavior and decision making at the micro level i.e., individuals, households, and firms. To achieve this, the module covers a number of topics including scarcity, choice, and opportunity cost, the function of demand and supply, market equilibrium, elasticity, market structure, function of production, consumption function and the theory of the firm.

Learning outcomes

By the end of this module, students should be able to**:**

i) Explain individuals, households and firm's economic behavior and decision;

ii) Assess micro level economic behavior and decision making;

iii) Suggest advice to individuals, households, and firms in need;

iv) Solve economic challenges using available production and consumption dataset;

v) Articulate microeconomic thoughts effectively and clearly in written or oral forms to the audience;

vi) Address individual, household, and organization issues.

Module 5: Macroeconomics

Indicative content

The present module intends to provide to learners a thorough understanding of the economic behavior and performance as a whole. Unlike microeconomics, macroeconomics brings the understanding of the economic phenomena to the central level such as government, region, and world. The module covers topics such as fiscal, monetary, policies, international trade and exchange rate, macro-economic models and aggregate demand and extends its scope to international macroeconomics.

Learning outcomes

By the end of this module, students should be able to:

i) Explain macroeconomic concepts, principles, and theories ;

ii) Articulate the economic behavior and economic decision at the government, region, and world levels;

iii) Evaluate an economic phenomenon at the macro level;

iv) Suggest relevant orientations to economic phenomena at the macro level;

v) Use aggregate production and consumption dataset to predict and solve economic challenges at the country, region, and global scene;

vi) Integrate the value of diversity while working in a multicultural setting.

Module 6: Public Sector Economics

Indicative content

The module thoroughly analyzes the role of the government in the economy. It aims at furnishing students with a ground in the principles of the role of the government in the economy, social transfer's schemes such as education, social security, health care, etc. Further, the module discusses the role of taxation and its optimization, social insurance, social security and health insurance, and public decision making.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the role of the government in the economy through addressing market failures, promoting social programs, and implementing optimized taxation;

ii) Criticize constructively government taxation and social policies against acquired knowledge;

iii) Diagnose the impact of government taxation and social policies using existing dataset and provide necessary advice;

iv) Use interpersonal skills to coach others as far as public sector economics is concerned.

Module 7: Health Economics

Indicative content

The overall purpose of the course is to introduce the basic concepts of economics and their application to the health sector. The concepts and the analyses presented in this course material will help to serve as working material so that students and others could understand and apply basic ideas of economics to the health sector. The topics covered include special features of the healthcare and circular market, the four basic questions, the main features of the health care service, circular and its relationship with economic development, economic models and analysis, the market for health insurance, the issue of equity as it relates to health and healthcare, the technique of health economic evaluation and health and resource economics and sustainable development.

Learning outcomes

By the end of this module, students should be able to:

i) Explain health as one of the social service sectors and its economic implication;

ii) Analyze the health financing and circular policies,

iii) Identify the ways through which improvement of the health and circular system can create conducive conditions for sustainable economic development and vice versa;

iv) Use health and circular sector database to conduct the cost benefit analysis and cost effectiveness analysis of healthcare and curricular activities;

v) Recognize ethical dilemmas while researching and addressing health and circular economics issues.

Module 8: International Economics

Indicative content

The main goal of this module is to provide the learner with classical and modern theories of international trade and finance. Learners will be given substantial analysis of efficient trade policies, international finance flows, determination of interests and exchange rates in interconnected economies, macroeconomic policies available for the government and nature of financial crises, asset approach to exchange rate determination, tariffs and non-Tariff barriers to trade, price levels and the exchange rate in the long run, international capital markets and emerging markets and financial and economic crisis of 2008-2009.

Learning outcomes

Upon successful completion of the training, learners should be able to demonstrate ability to:

i) Demonstrate the comprehension of international trade policies and mechanisms of the international finance;

ii) Examine the country's international trade and finance policies and suggest potential room for improvement;

iii) Show proficiency in the use the ICT tools to handle issues relative to international trade and finance;

iv) Participate effectively in working teams while addressing international trade and finance matters.

Module 9: Introduction to Econometrics

Indicative content

The purpose of the module is to give to learners an introduction to econometrics and how it is applied in economics. This course is basically an introductory course on Econometrics. The topics covered include econometrics analysis, single equation (regression models), Normal linear regression model, violation of regression assumptions, applied econometric analysis, and practical aspects of statistics testing.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the basic assumptions of the classical linear regression model;

ii) Identify any violations of these assumptions, such as autocorrelation and heteroscedasticity;

iii) Use statistical analysis, including the classical regression model in order to estimate relevant economic parameters, predict economic outcomes, and test economic hypotheses;

iv) Develop a working knowledge of econometrics that will provide a basic foundation for future study in econometrics and statistical techniques;

v) Use econometrics to conduct research in education.

Module 10: Development Economics

Indicative content

This course is meant to expose students to conceptual, methodological and policy issues in Development Economics. While it is essential for students to understand the scope of development economics and methodologies involved, it is important to appreciate the controversies arising from them. At the end of the course the students are expected to understand, Theories of Development and Growth Models, Features of African Economies, Stabilization, Adjustment and Development Finance

Learning outcomes

By the end of this module, students should be able to:

i) Explain the development issues facing the developing world in general and Africa in particular;

ii) Assess the development challenges;

iii) Carry out theoretical and policy relevant analysis;

iv) Use existing dataset to identify and address development structural issues;

v) Take leadership and responsibility in researching development economic issues and present findings to researchers and policy makers;

vi) Communicate effectively both in writing and orally to conveying economic analysis, policy recommendations and research findings related to development.

Module 11: Environment Economics

Indicative content

The overall objective of this course is to provide graduate students with an understanding of environmental economics such that at the end of the course they will be thoroughly familiar with the frontier of science in this special area of Economics. The module will cover aspects such as key concepts of environment economics, optimum exploitation and management of natural resources, pollution, environmental valuation, cost-benefit analysis, sustainable development, natural resource economics, environment accounting, international environment issues.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the theories and models of environmental economics;

ii) Evaluate the environment-economic linkages;

iii) Implement environmental models to research and policy issues in the area of environmental economics;

iv) Exhibit environmentally friendly attitudes while implementing economic activities.

Module 12. Labor Economics

Indicative content

The aim of the module is to equip students with the basic knowledge, skills, and attitudes about employment, wages, working conditions and unemployment. It will enable students to apply the tools of analysis to a wide range of models and policy relating to the functioning of labor markets. This course is designed to introduce students to labor supply, labor demand in competitive and non-competitive markets, labor market equilibrium, labor unions, determination of equilibrium wages, wage policies, search and matching models; labor market institutions human capital models, investment and education; wage and income inequality; labor mobility; gender, race, ethnicity and discrimination in the labor market; incentive pay, international labor economics.

Learning Outcomes

By the end of this module, students should be able to:

i) Describe key features of the labor market;

ii) Explain the core concepts and tools of labor economics.;

iii) Analyze models of the labor market to make predictions concerning the impact of public policy recommendations.

iv) Apply economic principles and reasoning to critically analyze labor market phenomena;

v) Explain the future role work and jobs in evolving social and economic environments;

vi) Communicate their knowledge and understanding of labor market and related social issues;

vii) Critically evaluate policies affecting work and jobs;

viii) Interpret labor market statistics and the statistical outputs.

1.9.9 Entrepreneurship modules

Brief description of aims

The program aims at providing learners with knowledge and skills in entrepreneurship, innovation, and related subjects. In addition to equipping students with consistent knowledge in the field, the program offers a space for practice that would enable students to develop and create business ventures. Students shall also be sufficiently trained to teach modules of entrepreneurship.

Learning Outcomes

By the end of this program, students should be able to:

i) Explain the concepts of marketing, finance, develop leadership, small business management, and legal and ethical issues relevant to entrepreneurship;

ii) Perform marketing, finance, leadership, and small business management;

iii) Show an entrepreneurial mindset characterized by creativity, innovation, risk-taking, and a proactive approach to identifying and pursuing opportunities;

iv) Develop comprehensive business plans and strategies for launching and growing a successful venture, including market analysis, financial planning, and competitive positioning;

v) Evaluate business opportunities and market demand;

vi) Determine the feasibility and viability of entrepreneurial ventures;

vii) Communication effectively business ideas with stakeholders.

Table 12: **Distribution of Entrepreneurship modules**

S/N	Modules	Year of study	Semester	Credits
1	Accounting for entrepreneurs	1	1	15
2	Financial Management	1	2	10
3	Introduction to Entrepreneurship	1	2	10
4	Leadership and Management	2	1	10
5	Marketing and E-Business	2	1	10
6	Business Law and Taxation	2	2	10
7	Social and sustainable Entrepreneurship	2	2	10
8	New Venture Creation	3	1	10
9	Project Management	3	1	10
10	Business Relationship and Networking	3	2	10
11	Auditing	3	2	10
12	International Entrepreneurship	4	1	10
13	Business Plan Development	4	1	15
Total credits				**140**

Module 1: Accounting for entrepreneurs

Indicative content

The module is designed to equip students with a comprehensive understanding of accounting principles and practices tailored specifically for teachers of entrepreneurship. Students will explore various aspects of accounting and reporting, costing, focusing on the unique needs and challenges faced by entrepreneurs in managing their own businesses. The module covers several topics including accounting in entrepreneurship, key accounting concepts, bookkeeping basics, recording transactions, financial statements preparation as well as cost and management accounting basics.

Learning outcomes

By the end of this module, students should be able to:

i) Explain fundamental accounting, costing principles, practices, and their application in the context of entrepreneurial ventures;

ii) Write accurate financial records;

iii) Create financial statements;

iv) Analyze financial data to support decision making for entrepreneurs;

v) Explain various accounting techniques applied in journalizing transactions, preparation of income statement, balance sheet, bank reconciliation statement and control accounts;

vi) Use accounting data for financial performance appraisal in any business.

Module 2: Financial Management

Indicative Content

This module will provide students with an understanding of the basic principles and concepts of financial management. It will introduce students to finance functions as well as sources of finance. The module will also cover financial markets and institutions, time value of money, capital budgeting techniques, dividend theories, cost of capital and financial statement analysis.

Learning outcomes

By the end of this module, student should be able to:

i) Define financial management and related concepts,

ii) Analyze the financial environment for sound finance decisions,

iii) Use capital budgeting techniques to appraise investment projects,

iv) Apply financial ratios to analyze financial statements.

Module 3: Introduction to Entrepreneurship

Indicative content

The goal of this module is to inspire learners and help them develop an entrepreneurial mind-set. The students will learn what entrepreneurship is and how it has impacted the world and their country. They will be introduced to key traits of an entrepreneur and be given an opportunity to assess their own strengths and identify gaps that need to be addressed to become a successful entrepreneur. The module covers several topics including an introductory unit enlightening key concepts, who is an entrepreneur, and different types of business, entrepreneurial mindset, as well as opportunity identification and assessment.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of entrepreneurship, entrepreneur, and different business classifications;

ii) Translate the acquired knowledge into an entrepreneurial idea that will be developed in a business plan;

iii) Analyze different types of business;

iv) Select the best type of business that fits in relation to their entrepreneurial ideas;

v) Solve problems through entrepreneurial solutions.

Module 4: Leadership and management

Indicative content

This module offers the students an opportunity to gain an enhanced understanding of leadership applications in the business context with required managerial skills. It aims at developing knowledge and understanding of both theoretical and practical managerial systems and its applications for the success of any business institution. The study area would include evolution of management thoughts, management styles, analysis and design, leadership theories and models necessary for a successful leader.

Learning outcomes

By the end of this module, students should be able to:

i) Design management procedures to choose the leadership style suitable to the context;

ii) Critically assess existing effectiveness of leadership and management in organization;

iii) Explain the role of management and leadership in today's business environment;

iv) Synthesize the leadership philosophy and models so as to adapt them to the organizational conditions.

Module 5: Marketing and E-Business

Indicative content

The module intends to develop and deepen the knowledge of the entrepreneurial marketing concept and its implementation, particularly as far as start-ups are concerned. It focuses on the management of marketing mix and how to prepare a marketing plan, conduct market research so as to position the business. It covers several topics including introduction to marketing, digitalization of commerce, managing online business transactions, as well as effective sales and market negotiations.

Learning outcomes

By the end of this module, students should be able to:

i) Explain fundamental marketing concepts and their significance in entrepreneurship;

ii) Analyze consumer behavior;

iii) Conduct market research to identify opportunities and target markets for entrepreneurial ventures;

iv) Manage product offerings, including branding and value proposition creation;

v) Implement digital marketing strategies, including content marketing, and social media marketing.

Module 6: Business Law and Taxation

Indicative content

The module aims at introducing students to the legal environment related to the negotiation of business with third parties (such as creditors, debtors, agents or suppliers), highlighting the implications of legal rules in the management of business and thus allowing more conscious and informed decisions. It also introduces students to the principles of tax law in Rwanda as applied to different types of taxes. The module covers topics including corporate and business law and taxation.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the principles and rules relating to business law in general and in Rwanda particularly;

ii) Apply basic legal knowledge to business transactions;

iii) Communicate effectively using standard business and legal terminology;

iv) Appreciate the effect of legal and ethical framework on financial processes, reports and systems recognizing the need to seek further specialist legal advice.

Module 7: Social and Sustainable Entrepreneurship

Indicative content

The module social and sustainable entrepreneurship is designed to provide students with a comprehensive understanding of the principles and practices of entrepreneurship that contribute to social and sustainable well-being. This module explores the intersection of business, innovation, and sustainability with a focus on fostering the knowledge and skills needed to create and manage businesses that prioritize social impact and environmental sustainability. The module covers the importance of social and sustainability entrepreneurship, creation of social and sustainability plans, ethics, collaboration, current issues and emerging trends in social entrepreneurship, global social and sustainable challenges and opportunities as well as innovation in sustainable business practices.

Learning outcomes

By the end of this module, students should be able to:

i) Differentiate between social and sustainable entrepreneurship and traditional entrepreneurship

ii) Analyze real world examples of social and sustainable enterprises and their impact on society

iii) Identify opportunities for social and sustainable entrepreneurship in various industries and sectors.

iv) Develop a mini business plan that integrates social and sustainable objectives with financial plans

v) Critically assess the challenges and barriers faced by social and sustainable entrepreneurs and propose strategies for overcoming them.

Module 8: New Venture Creation

Indicative content

This module provides hands-on experience in entrepreneurship and equips learners with critical thinking, specific methods to access and understand the industry, customers, and competitors, preparing them for new venture creation. The module also introduces the students to how to translate business insights into a winning venture idea, a business model, and a set of distinctive new products and services. In addition, the module gives students a wide range of techniques to spot business opportunities that could later be transformed into business ventures. The module covers topics such as entrepreneurial thinking, Opportunity Spotting and Evaluation, Business Model and Lean Startup, Industry and Market Research, Strategy and Business Models.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the strategies and techniques that are appropriate to the creation of new ventures;

ii) Analyze the acquired knowledge about new ventures creation while customizing this knowledge to the context;

iii) Apply the methods and techniques for the creation of new business ventures;

iv) Work with the team of experts to fine-tune business venture ideas.

Module 9: Project Management

Indicative content

The module Project Management provides students with knowledge and skills required to plan, execute and manage business projects with a focus on entrepreneurial and innovative approaches. This module combines theoretical foundations of project management with practical application to business, encouraging students to develop a project management mindset that incorporates entrepreneurial thinking. The module covers introduction to project management, project initiation and planning, project execution and monitoring, evaluation of project impact, as well communication and stakeholder engagement.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key project management concepts and principles,

ii) Develop a comprehensive project schedule and cost for a business venture,

iii) Apply project management tools and techniques to effectively engage and monitor projects stakeholders,

iv) Assess potential risks and challenges in business projects and propose mitigation strategies.

Module 10: Business Relationship and Networking

Indicative content

This module provides entrepreneurs with competences, methodologies and tools to support them in understanding the importance of personal relationships, in engaging trainees, in creating new business opportunities (developing and maintaining new market and customer opportunities). It also helps them to exploit techniques, tools and events to increase the effectiveness of networking activities and business relationship management. The module covers following topics: business communication, relationships to different types of counterparts, development of relationships over time, creating trust and handling conflicts in relationships, managing the company's customer and supplier portfolios, managing networks, including supplier networks, customer networks, and innovation networks, learning and competence development in and across relationships, strategy processes in business networks, digitalization in business networks. It also includes developing business communication skills.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts and approaches of establishing business relationships and networking;

ii) Develop strong and sustainable business relationship and networking;

iii) Establish good communication practices that are favorable to a good business relationship and networking;

iv) Promote ethical values in the business relationship and networking as an instrument of business sustainability.

Module 11: Auditing

Indicative content

This module will introduce students to auditing. It covers introduction to auditing, differences between auditing and accounting, differences between auditing and investigation. It will also cover auditing procedures, audit planning and control, internal control systems, prevention and detection of errors and frauds as well audit working papers.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of auditing and their relationship with accounting concepts,

ii) Describe the role of auditing on efficient management of organizational resources,

iii) Design relevant internal control systems for sound management of organizational resources

iv) Show an understanding of the auditing process.

v) Effectively deliver auditing lessons.

Module 12. International Entrepreneurship

Indicative content

This module is designed to provide learners with knowledge and skills enabling them to embark on international ventures. It provides students with knowledge useful for the identification and evaluation of international business opportunities, as well as building and managing an international venture. It also offers students an opportunity to consult a real-life entrepreneur in going international and thus gain first-hand experience on the challenges of internationalization. The module covers among others introduction to international entrepreneurship and international business opportunities, evaluation of international business opportunities and taking your company international: managing international operations.

Learning outcomes

By the end of this module, students should be able to:

i) Highlight international business opportunities,

ii) Assess various international markets;

iii) Build an international organization;

iv) Manage across cultures the product/ service offering to the demands of each international market.

Module 13: Business Plan Development

Indicative content

This module takes the student through the process of preparing and producing a comprehensive business plan based on market research, cash flow and profit and loss projections. The student is encouraged to utilize robust research practices and to engage with strategic critical thinking. The module will discuss, SWOT analysis, key parts of business plan, use of business plan, Relationship between business plans and strategic planning, Market opportunity and target market and Importance of a business plan for entrepreneurs and investors.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the purpose and importance of a business plan for entrepreneurs and investors;

ii) Design and implement a business plan;

iii) Develop a comprehensive and convincing business plan that effectively communicates the value proposition and differentiators of the business;

iv) Use financial analysis techniques to project financial performance, evaluate profitability, and assess funding requirements;

v) Explain the legal and regulatory considerations associated with business planning;

vi) Incorporate the legal and regulatory considerations into the planning process.

1.9.10 Imbumbanyigisho z' Ikinyarwanda

Inshamake y'Inyigisho

Iyi nyigisho igamije gutegura abanyeshuri bazavamo abarimu b'Ikinyarwanda cyane cyane abo mu mashuri yisumbuye n'ay'imyuga, haba mu Rwanda ndetse no mu mahanga, ndetse n'abazaba abarimu n'abashakashatsi muri za kaminuza nyuma yo kwiga amasomo y'ubuzobere. Uretse kandi kwibanda ku rurimi rw'Ikinyarwanda, iyi nyigisho igamije gutegura abanyeshuri bazahabwa impamyabumenyi y'icyiciro cya kabiri cya kaminuza mu burezi (Bachelor of Education), bityo ikaba igamije gucyemura ibibazo bigaragara mu myigire n'imyigishirize y'Ikinyarwanda by'umwihariko, ndetse n'izindi ndimi muri rusange, byose bigamije kuzamura ireme ry'uburezi.

Intego z'Inyigisho

Nyuma yo kurangiza amasomo akubiye muri iyi nyigisho y' ikinyarwanda, umunyeshuri azaba ashobora kwigisha neza amasomo y'Ikinyarwanda kugeza ku rwego rw'amashuri

yisumbuye, kandi azaba afite ubumenyi, ubumenyingiro, ubushobozi n'ubukesha ku rurimi rw'ikinyarwanda cyane cyane kuri izi ngingo zikurikira:

i) Umusogongero ku rurimi rw'Ikinyarwanda, iyigandimi, n'ubuvanganzo nyarwanda

ii) Ubugeni bwo kuvuga, kumva, gusoma no kwandika mu Kinyarwanda

iii) Iyigamvugo, iyigamajwi, iyigantego n'iyiganteruro by'Ikinyarwanda

iv) Iyiganyito n'isesengurandimi, iyigandimi nyamateka, n'iyigandimi ngereranya by'Ikinyarwanda

v) Inkuru ngufi n'inkuru ndende mu Kinyarwanda, ubusizi nyarwanda, n'iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda

vi) Iyigandimi nyamubano mu Rwanda

vii) Iyigarutonde, iyigamuga n'iyandikankoranya by'Ikinyarwanda

Imbonerahamwe ya 13: **Imbata y'imbumbanyigisho z'Ikinyarwanda mu cyiciro cya kabiri cya kaminuza mu burezi**

S/N	Imbumbanyigisho	Umwaka	Igihembwe	Igihe cy'imbumbanyigisho
1	Umusogongero ku rurimi rw'Ikinyarwanda n'iyigandimi	1	1	15
2	Umusogongero ku buvanganzo nyarwanda	1	2	10
3	Ubugeni bwo kuvuga no kwandika mu Kinyarwanda	1	2	10
4	Iyigamvugo n'iyigamajwi by'Ikinyarwanda	2	1	10
5	Inkuru ngufi n'inkuru ndende mu Kinyarwanda	2	1	10
6	Iyigantego ry'Ikinyarwanda	2	2	10
7	Iyiganteruro ry'Ikinyarwanda	2	2	10
8	Iyigandimi nyamateka n'iyigandimi ngereranya by'Ikinyarwanda	3	1	10
9	Ubusizi nyarwanda	3	1	10
10	Iyigandimi nyamubano mu Rwanda	3	2	10
11	Iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda	3	2	10
12	Iyiganyito n'isesengurandimi	4	1	10

	by'Ikinyarwanda			
13	Iyigarutonde, iyigamuga n'iyandikankoranya by'Ikinyarwanda	4	1	15
Igihe cyose cy'imbumbanyigisho				**140**

IMBUMBANYIGISHO YA MBERE: Umusogongero ku rurimi rw'Ikinyarwanda n'iyigandimi

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho ikubiyemo ubumenyi ku nshoza y'ururimi, inkomoko n'amasano ndetse n'itandukaniro by'indimi nyabantu muri rusange. Iyi mbumbanyigisho kandi ikubiyemo ubumenyi rusange ku iyigandimi, inshoza n'amuga bikoreshwa mu iyigandimi, amahame n'amahange bikoreshwa mu iyigandimi, isano n'itandukaniro biri hagati y'iyigandimi n'ibindi byerekezo by'ubuhanga bikoreshwa mu myigire, imyigishirize n'ubushakashatsi nyarurimi, ndetse n'amateka n'imiterere rusange by'ururimi rw'Ikinyarwanda.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi ku ngingo zikurikira:

i) Iyigandimi n'ibyerekezo bitandukanye byaryo,
ii) Inshoza n'amuga bikoreshwa mu iyigandimi,
iii) Amahame n'amahange bikoreshwa mu iyigandimi,
iv) Amateka n'imiterere rusange by'Ikinyarwanda.

IMBUMBANYIGISHO YA 2: Umusogongero ku buvanganzo nyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho yibanda ku bumenyi rusange ku buvanganzo, inshoza n'amuga akoreshwa mu buvanganzo, ingeri zitandukanye z'ubuvanganzo zirimo ibyivugo, imivugo, imigani migufi n'imigani miremire, ibitekerezo byo muri rubanda, indirimbo, ibisigo, ubwiru, amazina y'inka, n'izindi. Iyi mbumbanyigisho kandi yibanda mahame n'amahange akoreshwa mu isesengura ry'ingeri zitandukanye z'ubuvanganzo, ndetse n'amateka n'imiterere y'ubuvanganzo nyarwanda by'umwihariko.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi ku ngingo zikurikira:

i) Ubuvanganzo nk'inshoza n'ikerecyezo cy'ubuhanga,
ii) Inshoza n'amuga bikoreshwa mu buvanganzo,
iii) Ingeri zitandukanye z'ubuvanganzo,

iv) Amahame n'amahange akoreshwa mu isesengura ry'ingeri zitandukanye z'ubuvanganzo,

v) Amateka n'imiterere y'ubuvanganzo nyarwanda.

IMBUMBANYIGISHO YA 3: Ubugeni bwo kuvuga no kwandika mu Kinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho ifasha abanyeshuri kugira ubuhanga, ubumenyi n'ubumenyingiro mu bugeni bwo kuvuga, kwandika, kumva no gusoma Ikinyarwanda muri rusange. By'umwihariko, iyi mbumbanyigisho izibanda ku bugeni bwo kuvuga no kwandika mu Kinyarwanda, gukora icyandikwa, gukora inyandikomvugo, kuvuga mu ruhame, kuyobora inama n'ibiganiro mpaka no kuvuga mu yindi mihango ikenera gukoresha ururimi mu buryo bwihariye, gutanga no gucengeza amakuru, kubara inkuru, gukora inshamake, gutegura imbwirwaruhame n'ibindi. Ikindi, iyi mbumbanyigisho isobanura amateka n'imiterere y'amategeko n'amabwiriza agenga imyandikire y'Ikinyarwanda mu iyogabihe.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira:

i) Amahame rusange ajyanye n'imyandikire y'Ikinyarwanda,

ii) Uburyo bunoze bwo kuvuga, kumva, gusoma no kwandika Ikinyarwanda,

iii) Gukora icyandikwa, inyandikomvugo, imbwirwaruhame,

iv) Gutanga, gusesengura no gucengeza amakuru,

v) Kuyobora inama, ibiganiro mpaka n'iyindi mihango isaba ikoreshwa ry'Ikinyarwanda kihariye,

vi) Kubara inkuru, kuvuga mu ruhame, no gukora incamake,

vii) Amateka n'imiterere y'amabwiriza y'imyandikire y'Ikinyarwanda.

IMBUMBANYIGISHO YA 4: Iyigamvugo n'iyigamajwi by'Ikinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho isobanura kandi ikibanda ku iyigamajwi nk'icyerekezo cy'ubuhanga kita ku majwi agize indimi nyabantu, ndetse no ku iyigamvugo nk'icyerekezo cy'ubuhanga kibanda ku gusesengura no gushyira mu byiciro amajwi akoreshwa mu rurimi rw'Ikinyarwanda. Iyi mbumbanyigisho isobanura iyigamajwi mu byiciro byaryo uko ari bitatu, ari ibyo imivugire, imyumvire n'iyakirwa by'amajwi akoreshwa mu rurimi rw'Ikinyarwanda.

Intego z'Imbumbanyigisho

Umunyeshuri uzarangiza iyi mbumbanyigisho azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira:

i) Inshoza n'amateka by'iyigamvugo n'iyigamajwi,

ii) Itandukaniro n'isano biri hagati y'iyigamvugo n'iyigamajwi,

iii) Amajwi n'ibimenyetso bitandukanye bikoreshwa mu nyandiko nyemvugo n'inyandiko nyejwi by'Ikinyarwanda n'izindi ndimi Bantu,

iv) Ibice bigize amajwi akoreshwa mu Kinyarwanda n'izindi ndimi Bantu,

v) Amahame n'amahange akoreshwa mu iyigamvugo n'iyigamajwi,

vi) Amateka y'ikiremwamuntu n'imiterere y'umubiri w'umuntu n'uruhare rwabyo mu iyigamvugo n'iyigamajwi,

vii) Uburyo amajwi avugwa, yumvwa, anakirwa mu rurimi rw'Ikinyarwanda n'izindi ndimi Bantu.

IMBUMBANYIGISHO YA 5: Inkuru ngufi n'inkuru ndende mu Kinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho yahariwe inkuru ngufi n'inkuru ndende mu Kinyarwanda. Isobanura amateka n'imiterere y'inkuru ngufi n'inkuru ndende mu iyogabihe mu Rwanda no mu Kinyarwanda, ikibanda ku gusobanura abanditsi, ubuzima, amateka n'imiterere byabo n'uruhare bigira ku nkuru ndende n'inkuru ngufi zabo, kandi ikanerekana amahame, amahange n'uburyo byo gusesengura inkuru ndende n'inkuru ngufi hibandwa ku bintu bitandukanye biyigize birimo imiterere y'inkuru ubwayo, ibikorwa, abanyarubuga, ibarankuru, ndetse n'imimaro n'intego by'inkuru.

Intego z'Imbumbanyigisho

Nyuma yo kwiga iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi n'ubushobozi muri ibi bikurikira:

i) Imiterere n'uturango by'inkuru ngufi n'inkuru ndende,

ii) Itandukaniro n'isano hagati y'inkuru ngufi n'inkuru ndende,

iii) Amateka, imiterere n'uturango by'inkuru ngufi n'inkuru ndende mu iyogabihe mu Rwanda,

iv) Uruhare rw'ubuzima, amateka n'imiterere by'abanditsi mu myandikire y'inkuru ngufi n'inkuru ndende,

v) Amahame, amahange n'uburyo bwo gusesengura inkuru ndende n'inkuru ngufi,

vi) Ibyitabwaho mu gusesengura inkuru ngufi n'inkuru ndende.

IMBUMBANYIGISHO YA 6: Iyigantego ry'Ikinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho yerekana ubwoko bwose bw'amagambo agize ururimi rw'Ikinyarwanda n'izindi ndimi Bantu, igamije kwerekana intego zayo. Yibanda ku buryo n'ibigenderwaho mu gushyira amoko y'amagambo mu byiciro bitandukanye, ikerekana isano n'itandukaniro biri hagati y'amoko y'amagambo agize ururimi. By'umwihariko yerekana intego n'amategeko y'igenantego n'igenamajwi akoreshwa mu mazina, ibinyazina, inshinga n'itondaguranshinga ryoroheje n'iry'urusobe, haba mu Kinyarwanda ndetse no mu zindi ndimi Bantu.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira:

i) Ubwoko bw'amagambo agize ururimi rw'Ikinyarwanda,

ii) Ubwoko bw'amagambo agize indimi Bantu

iii) Imiterere y'ubwoko butandukanye bw'amagambo agize Ikinyarwanda n'izindi ndimi Bantu,

iv) Itondaguranshinga ryoroheje n'iry'urusobe mu rurimi rw'Ikinyarwanda,

v) Uburyo bwo gusesengura intego z'inshinga, amazina, ibinyazina, ntera n'andi magambo agize Ikinyarwanda n'izindi ndimi Bantu,

vi) Kwerekana, gukoresha no gusobanura amategeko y'igenamajwi n'igenantego akoreshwa mu gusesengura intego z'amagambo mu Kinyarwanda.

IMBUMBANYIGISHO YA 7: Iyiganteruro ry'Ikinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho ikubiyemo amahame n'amahange akoreshwa mu iyiganteruro, ikanerekana isano n'itandukaniro biri hagati y'iyigantego n'iyiganteruro, by'umwihariko ikerekana amahame, amahange n'uburyo amagambo atandukanye akurikirana akabyara interuro yoroheje cyangwa interuro y'urusobe. Yerekana imimaro itandukanye amagambo agira mu nteruro, ikerekana uburyo habaho isanisha mu rurimi rw'Ikinyarwanda no mu zindi ndimi Bantu. Iyi mbumbanyigisho kandi yerekana amahame n'amahange ashingirwaho, ndetse n'uburyo bwo kwerekana ko interuro ari interuro iboneye cyangwa interuro ikocamye mu rurimi rw'Ikinyarwanda no mu zindi ndimi Bantu. Ikindi kandi iyi mbumbanyigisho yerekana ibice bitandukanye bigize interuro y'urusobe, ikerekana akamaro k'ibyungo mu nteruro y'urusobe, ndetse n'uburyo igisobanuro cy'interuro gishobora guhinduka cyangwa kudahinduka bitewe n'umwanya ijambo runaka cyangwa igice cy'interuro kimuriwemo mu nteruro.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira:

i) Amahame n'amahange atandukanye akoreshwa mu iyiganteruro,

ii) Amahame, amahange n'uburyo butandukanye bikoreshwa mu isesenguranteruro,

iii) Gusesengura ibice bigize interuro y'Ikinyarwanda n'izindi ndimi Bantu,

iv) Kwifashisha igiti mu kwerekana ibice bigize interuro hagendewe ku mahame n'amahange agezweho,

v) Ubwoko butandukanye bw'interuro mu rurimi rw'Ikinyarwanda,

vi) Kwerekana isano n'imimaro by'amagambo agize interuro yoroheje n'interuro y'urusobe,

vii) Kwerekana uburyo interuro igira ibisobanuro bitandukanye bitewe n'amagambo n'imyanya itandukanye ayo magambo arimo.

IMBUMBANYIGISHO YA 8: Iyigandimi nyamateka n'iyigandimi ngereranya by'Ikinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho yibanda ku buhanga bwo kugereranya indimi no kwerekana inkomoko yazo. By'umwihariko, yibanda ku rurimi rw'Ikinyarwanda, ikarugereranya n'izindi ndimi Bantu, ikerekana inkomoko yacyo, ikerekana isano n'itandukaniro biri hagati yacyo n'izindi ndimi Bantu. Byongeye, yerekana umwanya w'Ikinyarwanda mu ruhando rw'izindi ndimi Bantu n'izindi ndimi nyafurika. Iyi mbumbanyigisho kandi yerekana amahame, amahange n'uburyo bikoreshwa mu kugereranya indimi no gusesengura inkomoko yazo, imikurire yazo, ndetse kugeza no ku mizimirire yazo, haba mu bijyanye n'imvugo n'amajwi, ibijyanye n'iyigantego, ibijyanye n'iyiganteruro, ndetse n'ibijyanye n'iyiganyito mu ndimi. Ikindi kandi, iyi mbumbanyigisho yerekana uruhare rw'abenerurimi, inkomoko, imico, amateka, iterambere, ubuzima n'imibereho byabo, mu mihindagurikire y'indimi. Nyuma, iyi mbumbanyigisho yerekana amahame, amahange n'uburyo bukoreshwa mu kugaragaza inkomoko y'indimi no kwerekana uko ururimi rw'inkomoko rushobora kuba rwari ruteye.

Intego z'Imbumbanyigisho

Umunyeshuri azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira nyuma yo kwiga iyi mbumbanyigisho:

i) Inshoza zikoreshwa mu iyigandimi nyamateka n'iyigandimi ngereranya,

ii) Imiterere, isano n'itandukaniro by'indimi nyafurika n'imiryango izo ndimi zikubiyemo,

iii) Uturango, imiterere n'umwanya by'Ikinyarwanda n'indimi Bantu mu ndimi Nyafurika,

iv) Imiterere mu by'amajwi, imvugo, ubwoko bw'amagambo, iyigantego, iyiganteruro n'iyiganyito mu rurimi rw'ikinyarwanda no mu zindi ndimi Bantu

v) Gusesengura no kugereranya Ikinyarwanda n'izindi ndimi Bantu,

vi) Kwerekana aho amagambo agaragara mu Kinyarwanda no mu zindi ndimi nyafurika yaba akomoka,

vii) Kwerekana uruhere rw'inkomoko, amateka, imibereho, umuco n'iterambere by'abenerurimi mu kubaho kw'indimi zitandukanye ndetse no kuzimira kwazo.

IMBUMBANYIGISHO YA 9: Ubusizi nyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho yibanda ku mateka y'ubusizi nyarwanda by'umwihariko, ndetse n'ay'ubuvanganzo nyarwanda muri rusange. Iyi mbumbanyigisho isobanura inshoza y'ubusizi, ikerekana ubwoko butandukanye bw'ubusizi n'ibisigo, ndetse ikerekana n'ubuhanga butandukanye bukoreshwa mu busizi n'uburyo ibihangano nyabusizi bishyirwa mu byiciro bitandukanye hagendewe ku buhanga buba bwakoreshejwe ndetse n'utundi turango dutandukanye. Iyi mbumbanyigisho kandi yigisha amahame n'amahange akoreshwa mu gusesengura ibihangano nyabusizi, kandi ikerekana iminozanganzo ikoreshwa mu busizi, ndetse n'uturango dutandukanya imvugo cyangwa inyandiko nyabusizi n'ibindi byiciro by'imvugo cyangwa inyandiko. Mu gusoza, iyi mbumbanyigisho icengera ubusizi nyarwanda

igamije kwerekana uko bwagiye butera imbere mu iyogabihe, akamaro bwagiye bugira, ndetse n'ibibazo bwagiye buhura na byo kugeza ubu.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira:

i) Inshoza y'ubusizi n'ingeri zitandukanye z'ubusizi,

ii) Amateka y'ubusizi nyarwanda,

iii) Ubuhanga bukoreshwa mu busizi,

iv) Ibyiciro n'ubwoko bw'ubusizi n'ibisigo

v) Amahame n'amahange akoreshwa mu gusesengura ibihangano nyabusizi,

vi) Iminozanganzo ikoreshwa mu busizi,

vii) Umumaro w'ubusizi nyarwanda, n'ibibazo bigaragara mu busizi nyarwanda.

IMBUMBANYIGISHO YA 10: Iyigandimi nyamubano mu Rwanda

Inshamake y'Imbumbanyigisho

Hashingiwe ku rurimi rw'Ikinyarwanda ndetse n'izindi ndimi zikoreshwa mu Rwanda, iyi mbumbanyigisho igamije kwigisha abanyeshuri ibijyanye n'inshoza y'iyigandimi nyamubano, kandi hatirengagijwe izindi nshoza zifitanye isano na yo. Izi ni nk'iyigandimi nyamuco, imibanire nyarurimi, imiturire nyarurimi, poritiki n'imitunganyirize by'indimi, imyigire y'ururimi, ubwoko, ibyiciro, imikoreshereze ndetse n'imimaro by'indimi. Kuri buri nshoza muri izi zivuzwe haruguru, iyi mbumbanyigisho izibanda ku mahame, amahange n'uburyo bwa gihanga bukoreshwa mu kugena no gusesengura imikoreshereze y'indimi yibanda ku rurimi rw'Ikinyarwanda n'izindi ndimi zikoreshwa mu Rwanda. Iyi mbumbanyigisho isoza yerekana imiterere y'imikoreshereze, imyigire n'imyigishirize, ndetse na poritiki y'indimi mu Rwanda, kandi ikerekana ibibazo bigaragaramo ndetse n'uburyo ibyo bibazo byashakirwa umuti hifashishijwe amahame n'amahange y'iyigandimi nyamubano agezweho.

Intego z'Imbumbanyigisho

Umunyeshuri uzarangiza iyi mbumbanyigisho azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira:

i) Amahame n'amahange akoreshwa mu iyigandimi nyamubano,

ii) Ibyerekezo by'ubuhanga bifitanye isano n'iyigandimi nyamubano, n'isano iri hagati y'indimi n'imibereho n'imibanire y'abantu,

iii) Imiturire nyarurimi, n'ubwoko n'ibyiciro by'indimi,

iv) Imyigire n'imikoreshereze by'indimi,

v) Indwara nyarurimi n'ingaruka zazo ku myigire n'imikoreshereze y'indimi,

vi) Imimaro y'indimi muri poritiki y'indimi, na poritiki n'imitunganyirize by'indimi mu Rwanda,

vii) Amahame n'amahange akoreshwa muri poritiki n'imitunganyirize by'indimi.

IMBUMBANYIGISHO YA 11: Iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho yibanda ku minozangano n'ubuhanzi nyandiko mu Kinyarwanda. Iyi mbumbanyigisho kandi yerekana isano iri hagati y'ubuvanganzo n'iyigandimi. Yerekana kandi amateka y'ubuvanganzo nyandiko mu Rwanda, ndetse n'ubwoko butandukanye bw'iminozanganzo ikoreshwa mu busizi nyandiko mu Kinyarwanda. Iyi mbumbanyigisho inerekana amahame n'amahange akoreshwa mu gusesengura ibahangano nyabusizi nyandiko, ndetse n'uburyo bwo gukora igihangano nyabusizi nyandiko.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi n'ubushobozi ku ngingo zikurikira:

i) Inshoza z'ubuvanganzo n'ubuhanzi nyandiko,

ii) Inshoza y'iminozanganzo n'ubwoko butandukanye bwayo,

iii) Isano n'itandukaniro biri hagati y'ubuvanganzo n'iyigandimi nk'ibyerekezo by'ubuhanga,

iv) Amateka y'ubuvanganzo nyandiko mu Rwanda,

v) Ingeri zitandukanye z'ubuvanganzo nyarwanda,

vi) Amahame, amahange n'uburyo bwo gusesengura ibihangano nyandiko,

vii) Uburyo bwo gukora ibihangano nyandiko mu Kinyarwanda.

IMBUMBANYIGISHO YA 12: Iyiganyito n'isesengurandimi by'Ikinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho igamije guha abanyeshuri ubumenyi, ubushobozi n'ubumenyingiro mu bijyanye n'iyiganyito ndetse n'isesengurandimi muri rusange, ariko by'umwihariko mu Kinyarwanda. Yibanda ku mahame, amahange n'uburyo bwa gihanga bukoreshwa mu gusesengura inyito mu rurimi runaka, kandi ikanerekana uburyo ayo mahame, amahange n'uburyo bwa gihanga byakoreshwa mu gusesengura inyito mu Kinyarwanda.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi, ubushobozi n'ubumenyingiro ku ngingo zikurikira:

i) Inshoza y'iyiganyito,

ii) Inshoza y'isesengurandimi,

iii) Amahame, amahange n'uburyo bwa gihanga bikoreshwa mu iyiganyito n'isesengurandimi,

iv) Gusesengura inyito mu Kinyarwanda hifashishijwe amahame, amahange ndetse n'ibikoresho by'ikoranabuhanga bigezweho,

v) Gusesengura ururimi rw'Ikinyarwanda, imikoreshereze n'inyito by'amagambo arugize mu iyogabihe hifashishijwe amahame n'amahange by'iyiganyito n'isesengurandimi, ndetse n'ibikoreshwo by'ikoranabuhanga.

IMBUMBANYIGISHO YA 13: Iyigarutonde, iyigamuga n'iyandikankoranya by'Ikinyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho itangira yigisha abanyeshuri inshoza z'iyigarutonde, iyigamuga, n'iyandikankoranya. Yerekana uburyo n'ubuhanga bukoreshwa mu mirimo yo gukora no kwandika amoko atandukanye y'intonde, inkoranyamuga n'inkoranyamagambo. Byongeye, iyi mbumbanyigisho yita ku mahange, amahame n'uburyo bwa gihanga bukoreshwa mu iyigarutonde, iyigamuga n'iyandikankoranya. Hagendewe kuri aya mahame n'amahange, iyi mbumbanyigisho yerekana uburyo bwo kwandika, gusesengura no kujora intonde, inkoranyamuga n'inkoranyamagambo zanditse mu Kinyarwanda by'umwihariko, ndetse no mu zindi ndimi muri rusange.

Intego z'Imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, umunyeshuri azaba afite ubumenyi, ubushobozi n'ubumenyingiro ku ngingo zikurikira:

i) Inshoza z'iyigarutonde, iyigamuga, n'iyandikankoranya,

ii) Amateka y'iyigarutonde, iyigamuga n'iyandikankoranyamagambo mu Rwanda,

iii) Ubwoko butandukanye bw'intonde, inkoranyamuga n'inkoranyamagambo,

iv) Uburyo ubuhanga, amahame n'amahange bikoreshwa mu iyandikarutonde, iyandikamuga n'iyandikankoranyamagambo,

v) Isano iri hagati y'iyigarutonde, iyigamuga n'iyandikankoranyamagambo n'ibindi byerekezo by'iyigandimi nk'iyiganyito, isesengurandimi, n'ibindi,

vi) Gusesengura no kujora intonde, inkoranyamuga n'inkoranyamagambo,

vii) Gukora urutonde no kwandika inkoranyamuga n'inkoranyamagambo hifashishijwe amahame n'amahange ndetse n'ibikoresho by'ikoranabuhanga bigezweho.

1.9.11 English modules

Brief description of the programme

The aim of the English language education programme is to equip students with the knowledge, skills and competences needed in English as language of teaching and learning in the Rwandan educational system and as language of wider communication in global scientific, technological and business arenas.

Learning outcomes

By the end of the programme, students should be able to:

i) Explain the main features of a well written text in English and the strategies used to interpret various English materials in an academic context;

ii) Explain fundamental grammatical structures of English as well as the elements of English language meaning and use;

iii) Use basic literary devices and styles used in African, British and American literature;

iv) Produce coherent text-types in English;

v) Hold a normal conversation and/or speak naturally in English;

vi) Correct language mistakes in spoken or written English;

vii) Carry out sociolinguistic surveys;

viii) Contribute to the improvement of a language plan used in a given context.

Table 14: **Distribution of English modules**

S/N	Module	Year of study	Semester	Credits
1	Proficiency in Written and Spoken English-I	1	1	15
2	Linguistics and Grammar of English	1	2	10
3	Introduction to Literature in English	1	2	10
4	World English Literature	2	1	20
5	Morphology and Syntax of English	2	2	10
6	Proficiency in Written and Spoken English-II	2	2	10
7	Sociolinguistics	3	1	20
8	Semantics and Pragmatics of English	3	2	10
9	Psycholinguistics	3	2	10
10	Study of Major Literary Genres	4	1	15
11	Discourse Analysis of English	4	1	10
Total credits				**140**

Module 1: Proficiency in Written and Spoken English-I

Indicative content

The module aims to help students enhance and refine the two language skills of writing and speaking in English as they navigate their studies at the university as well as in other various settings. It mainly focuses on some formal types of English writing such as official letter,

essay and summary as well as English language sounds and aspects of connected speech, paying special attention to British and American varieties of English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the main features of a well written paragraph, short essay, text summary as well as formal and informal letters in English;
ii) Explain the main phonological rules in English;
iii) Produce accurate and coherent short essays, short summaries of texts as well as formal and informal letters and CV in English;
iv) Speak accurately and with ease and interact with peers on a range of topics in English;
v) Use a computer to produce a piece of writing or present findings from the read document(s);
vi) Speak naturally in English using a variety of presentation modes;
vii) Confidently work on a variety of formal and informal pieces of writing in English.

Module 2: Linguistics and Grammar of English

Indicative content

The module aims to equip and acquaint students with basic theories, principles, processes and approaches used in the scientific study of language. The module also aims to provide students with the basic knowledge of grammar that will help them improve their writing and speaking and come up with clear and accurate expressions of English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key linguistic components and fundamental grammatical structures of English;
ii) Describe the fundamental components of linguistics;
iii) Distinguish linguistic schools and sub-fields;
iv) Apply the rules governing the use of the different types of words to make sentences and analyze texts;
v) Discuss the main linguistic schools and the functions of the sub-fields of linguistics;
vi) Analyze sentences, detect language mistakes and correctly write English;
vii) Carry out linguistic and grammatical analysis of English.

Module 3: Introduction to Literature in English

Indicative content

The module aims to equip students with the basic notions and concepts of English literature which help them to determine its nature (oral and written literature), situate it among other arts and sciences, discern its specificity, distinguish the qualities of a literary work and describe and analyze the major and minor literary genres.

Learning outcomes

By the end of this module, students should be able to:

i) Carry out critical appraisal of a literary work whether it is major and minor literary genre (prose fiction, poetry or drama);

ii) Analyze some selected works to illustrate the major characteristics of every literary genre and identify the theories developed by literary critics;

iii) Identify and appreciate the major themes developed in literary works.

Module 4: World English Literature

Indicative content

The module is intended to introduce students to the major literary genres and historical, cultural and political forces and ideologies that have shaped African, British and American literature. The module is also designed to equip the students with the tools that enable them to interpret, analyze and appreciate a wide range of texts and styles.

Learning outcomes

By the end of this module, students should be able to:

i) Explain various historical, cultural and political forces and ideologies that have shaped African, British and American literature;

ii) Use basic literary devices and styles in African, British and American literature;

iii) Explain major periods of English literature in African, British and American context;

iv) Express own ideas about literature, its form, its functions and its politics;

v) Interpret literary texts orally and in writing in a classroom situation and outside the class.

vi) Demonstrate the ability to carry out literary research in different literary genres.

Module 5: Morphology and Syntax of English

Indicative content

The module aims to analyze English language structures and explore its various morphological and syntactical aspects. The focus is on speech sounds in English, linguistic units in English, transformational grammar and other generative approaches in English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of morphology and syntax in English;
ii) Describe the main elements in the function of morphology and syntax in English;
iii) Apply the generative-transformational approach to English sentences;
iv) Explain generative-transformational approach to English sentences;
v) Analyze the quality of utterances and written words;
vi) Discuss the principles of word derivation;
vii) Use English correctly in speaking and writing.

Module 6: Proficiency in Written and Spoken English-II

Indicative content

The module aims to help students sharpen their written and spoken expression in English through different genres. The focus is on minutes and report writing, writing a press release, writing a concept paper, writing argumentative/persuasive, descriptive and narrative essays; public speaking and techniques of debating.

Learning outcomes

By the end of this module, students should be able to:

i) Produce various text-types in English: Minutes, short report, press release, concept paper/grant proposal, argumentative essay, descriptive essay and narrative/short story;
ii) Explain the main features of informal and formal public speaking in English;
iii) Use the techniques of debating in English;
iv) Produce a complete minute, short report, press release, concept paper/grant proposal and specific types of essays in English;
v) Produce and simulate a presentation to make/speech to hold in various circumstances in English;
vi) Participate in a debate conducted in English;
vii) Evaluate a debate conducted in English based on set criteria.

Module 7: Sociolinguistics

Indicative content

The module helps students understand how language is used in different layers of human society and how it generates idiolects, dialects and sociolects. It is also concerned with language policies and helps to understand and explain the fundamentals of language planning for social development.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the way linguistic productions especially texts are embedded in individual and social contexts;

ii) Explain the relationships between language and textual, individual and social environment;

iii) Apply key techniques of sociolinguistic analysis;

iv) Describe the influence of sociolinguistics on language policy and planning;

v) Demonstrate the influence of society in language policy and planning;

vi) Analyze texts emphasizing individual and social marks embedded in them;

vii) Analyze the language policy in use or carry out sociolinguistic surveys.

Module 8: Semantics and Pragmatics of English

Indicative content

The module introduces students to the semantics and pragmatics of English as basic elements of meaning and use in that language. It focuses on various dimensions of meaning in English, relations between text and context in English; relations between discourse and power, discourse and interaction in English; conversational implicature in English, social language codes in English and deviation from standard language varieties of English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key concepts of semantics and pragmatics in English;

ii) Explain the main elements of language meaning and use in English;

iii) Analyze and explain written texts and spoken words in English;

iv) Discuss the use of language in both spoken words and written texts in English;

v) Apply the knowledge of semantics and pragmatics to teach English.

Module 9: Psycholinguistics

Indicative content

The module aims to help students understand the relationship between the human mind and language. It focuses on the origins of human language; language acquisition, comprehension and production; language pathology as well as language and thought.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the steps of language acquisition, comprehension and production;

ii) Explain the main elements of the human language processing;
iii) Describe the cognitive processes constituting human language use ;
iv) Describe the psychological and neurobiological aspects of language;
v) Analyze the relationship between language and thought;
vi) Apply the principles of psycholinguistics to teaching and learning.

Module 10: Study of Major Literary Genres

Indicative content

This module aims to give an overview of such major English literary genres as prose (novel and short stories), drama and poetry; their history, characteristics and elements for their analysis.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the history of major English literary genres such as prose (novel and short stories), drama and poetry;
ii) Explain the characteristics of English novel, short story, drama and poetry;
iii) Apply the elements of analysis of English novel, short story, drama and poetry;
iv) Apply basic skills to analyze English novel, short story, drama and poetry;
v) Evaluate the emergence and growth of English novel, short story, drama and poetry;
vi) Discuss English literary texts orally/in writing in or outside class;
vii) Carry out literary research on various types of English novel, short story, drama and poetry.

Module 11: Discourse Analysis of English

Indicative content

The module helps students analyze and interpret English texts in terms of their structural characteristics and organization as well as their thematic content and socio-pragmatic content. It focuses on speech acts and conversational maxims in English; presuppositions, implicature and inference in English; theme and rheme in English, discourse intonation in English as well as the rules of discourse analysis in English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the basic concepts of discourse analysis in reading and interpreting texts in English;
ii) Describe the typology of texts and functions of English language;

iii) Critically analyze literary and ordinary texts in English;

iv) Analyze the meaning of English words in their context;

v) Interpret the meaning of discourses based on the particularities of English style.

1.9.12 Modules de Français

Contenu indicatif du programme

Le programme de "Licence en enseigment de Français » vise à donner aux étudiants une formation universitaire qui leur permettra de devenir des enseignants de la langue et littérature françaises dans les écoles secondaires, ainsi que des chercheurs dans le domaine de la langue, linguistique et littérature française. Ce programme a pour but de développer les compétences des étudiants en littérature et langue française qui leur permettra de promouvoir l'enseignement de qualité du français dans les écoles secondaires au Rwanda et ailleurs. Dans ce programme les étudiants rehaussent leur niveau de compétence de communication en français grâce aux modules d'expression orale et écrite en français.Ils gagneront des connaissances aussi théoriques que pratiques dans le domaine de la linguistique et de la littérature.

Les objectifs du programme

A la fin de ce programme les étudiants seront capable de:

i) Rehausser le niveau des compétences communicatives en français dès la première année de l'université.

ii) Expliquer les fondements de la langue, de la linguistique et littérature françaises;

iii) Décrire la littérature africaine d'expression française, et la littérature comparée en français;

iv) Décrire la sémantique, lexicologie et traduction, ainsi que la linguistique appliquée à l'enseignement du français;

v) Exploiter la stylistique française et la création littéraire

vi) Appliquer la grammaire française, ainsi que la linguistique et grammaire textuelle;

Table 15: **Distribution de modules de Français**

S/N	Module	Année d'étude	Semestre	Crédits
1	Expression orale et écrite en français I	1	1	15
2	Expression orale et écrite en français II	1	2	10
3	Expression orale et écrite en français III	1	2	10
4	Introduction à la langue et à la linguistique française	2	1	10
5	Introduction à la littérature française	2	1	10
6	Grammaire française	2	2	10
7	Littérature africaine d'expression française	2	2	10
8	Français professionnel	3	1	10
9	Linguistique appliquée à l'enseignement du	3	1	10

	français			
10	Français sur objectifs universitaires	3	2	15
11	Sémantique, lexicologie et traduction	4	1	10
12	linguistique et grammaire textuelle	4	2	10
13	Stylistique française et création littéraire	4	2	10
Total des crédits				**140**

Module1. Expression orale et écrite en français I

Le contenu indicatif

Ce module permettra aux étudiants de comprendre et utiliser des expressions familières et quotidiennes ainsi que des énoncés très simples qui visent à satisfaire des besoins concrets. Il leur permettra de se présenter ou de présenter quelqu'un et poser à une personne des questions qui la concernent par exemple, sur son lieu d'habitation, ses relations, ce qui lui appartient. Il s'agira aussi de pouvoir communiquer de façon simple si l'interlocuteur parle lentement et distinctement et se montrer coopératif. A la fin de ce module l'étudiant aura acquis le niveau A2 du CECRL.

Les objectifs d'apprentissage

A la fin du module l'étudiant sera capable de:

i) Atteindre le niveau A2 du Cadre Européen Commun de Référence pour les Langues.

ii) Utiliser des expressions familières et quotidiennes ainsi que des énoncés très simples qui visent à satisfaire des besoins concrets ;

iii) Se présenter ou présenter quelqu'un et poser à une personne des questions la concernant par exemple, sur son lieu d'habitation, ses relations, ce qui lui appartient, etc.

iv) Répondre au même type de questions;

v) Communiquer de façon simple si l'interlocuteur parle lentement et distinctement et se montre coopératif.

vi) utiliser l'outil informatique pour apprendre la langue française.

Module 2: Expression orale et écrite en français II

Le contenu indicatif

En mobilisant les compétences communicatives, ce module vise à permettre à l'apprenant de comprendre des phrases isolées et des expressions fréquemment utilisées en relation avec des domaines immédiats de priorité (par exemple, informations personnelles et familiales simples, achats, environnement proche, travail). Avec ce module l'étudiant pourra communiquer lors de tâches simples et habituelles ne demandant qu'un échange d'informations simple et direct sur des sujets familiers et habituels. Il pourra aussi décrire avec des moyens simples sa formation, son environnement immédiat et évoquer des sujets qui correspondent à des besoins immédiats. A la fin de ce module l'étudiant aura acquis le niveau B1 du CECRL.

Les objectifs d'apprentissage

A la fin de ce module, l'étudiant sera capable de:

i) Ecouter et comprendre des expressions et un vocabulaire très fréquent relatifs à ce qui le concerne de très près (par exemple lui-même, sa famille, les achats, l'environnement proche, le travail);

ii) Saisir l'essentiel d'annonces et de messages simples et clairs;

iii) Lire des textes courts très simples;

iv) Trouver une information particulière prévisible dans des documents courants comme les publicités, les prospectus, les menus et les horaires et comprendre des lettres personnelles courtes et simples;

v) Communiquer lors de tâches simples et habituelles ne demandant qu'un échange d'informations simple et direct sur des sujets et des activités familiers.

vi) Utiliser l'outil informatique pour apprendre la langue française.

Module 3: Expression orale et écrite en français III

Le contenu indicatif

En mobilisant les compétences communicatives, ce module l'apprenant permet à l'apprenant de comprendre les points essentiels quand un langage clair et standard est utilisé et s'il s'agit de choses familières dans le travail, à l'école, dans les loisirs, etc. Il lui permet aussi de se débrouiller dans la plupart des situations rencontrées en voyage dans une région où la langue cible est parlée et de produire un discours simple et cohérent sur des sujets familiers et dans ses domaines d'intérêt. L'apprenant sera aussi en mesure de raconter un événement, une expérience ou un rêve, décrire un espoir ou un but et exposer brièvement des raisons ou explications pour un projet ou une idée. A la fin de ce module l'étudiant aura acquis le niveau B2 du CECRL.

Les objectifs d'apprentissage

A la fin de ce module, l'étudiant sera capable de

i) Ecouter et copmrendre les points essentiels quand un langage clair et standard est utilisé et s'il s'agit de sujets familiers concernant le travail, l'école, les loisirs, etc.

ii) Lire et comprendre des textes rédigés essentiellement dans une langue courante ou relative à son travail;

iii) faire face, dans une conversation, à la majorité des situations que l'on peut rencontrer au cours d'un voyage dans une région où la langue est parlée;

iv) Prendre part sans préparation à une conversation sur des sujets familiers ou d'intérêt personnel ou qui concernent la vie quotidienne (par exemple famille, loisirs, travail, voyage et actualité)

v) S'exprimer sur des sujets abstraits et culturels;

vi) Prendre part sans préparation à une conversation sur des sujets familiers ou d'intérêt personnel;

vii) Résumer des éléments d'information issus de sources diverses, d'en faire le rapport et de donner son opinion

viii) Utiliser l'outil informatique pour apprendre la langue française.

Module 4: Introduction à la langue et à la linguistique française

Le contenu indicatif

Ce module vise à apprendre aux étudiants les éléments de base de la langue et de la linguistique françaises avec une considération spéciale des notions de base sur le langage, les types et catégories des langues, l'usage et les fonctions de langues, la phonétique et phonologie du française contemporain, ainsi que la production orale en française.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront capable de:

i) Expliquer les notions de base sur le langage;

ii) Décrire les différents types et catégories des langues;

iii) Décrire l'usage et fonctions des langues;

iv) Décrire la production orale en français;

v) Décrire la phonétique et phonologie du français contemporain,

vi) Appliquer la production orale en français

vii) Appliquer différents types et catégories des langues

Module 5: Introduction à la littérature française

Le contenu indicatif

Ce module vise à apprendre aux étudiants les grands courants et genres littéraires en France du Moyen Âge à nos jours et aux différentes approches d'explication de texte. Ce module initie les étudiants aux mouvements littéraires comme la poésie épique, le roman courtois, la satire, le lyrisme et aux courants littéraires comme la Renaissance, le Classicisme, le Siècle des Lumières, le romantisme, le réalisme, le surréalisme, le naturalisme, le symbolisme, le nouveau roman, etc.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront capable de:

i) Expliquer les grands noms de la littérature française du Moyen Âge à nos jours;

ii) Expliquer les mouvements littéraires: la poésie épique, le roman courtois, la satire, la lyrisme, etc.;

iii) Décrire les caractéristiques des courants littéraires: la Renaissance, le Classicisme, le Siècle des Lumières, le romantisme, le réalisme, le surréalisme, le naturalisme, le symbolisme, le nouveau roman, etc.;

iv) Appliquer les différentes approches d'explication du texte français.

Module 6: Grammaire française

Le contenu indicatif

Ce module vise à apprendre aux étudiants l'orthographe du français et à renforcer les éléments de la formation des mots français. Dans ce module, les étudiants vont apprendre les éléments de la morphosyntaxe du verbe français et des éléments de la morphosyntaxe de la phrase française qui leur permettront enfin d'acquérir les compétences grammaticales en français.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront capable de:

i) Expliquer les différentes modes de formation des mots français;
ii) Décrire la morphosyntaxe des parties du discours;
iii) Décrire la morphosyntaxe du verbe;
iv) Décrire la morphosyntaxe de la phrase;
v) Examiner la morphosyntaxe des parties du discours;
vi) Analyser la morphosyntaxe du verbe;
vii) Analyser la morphosyntaxe de la phrase.

Module 7: Littérature africaine d'expression française

Le contenu indicatif

Ce module vise à apprendre aux étudiants à repérer des indices, établir des liens, mettre en relation les informant du texte en vue d'en déduire des significations. Il vise également à aider les étudiants à expliciter et défendre sa position sur les intentions des poètes, des dramaturges et des romanciers de la littérature africaine francophone. Enfin ce module va permettre aux étudiants d'analyser les éléments linguistiques relatifs aux thèmes des textes et d'exprimer leur point de vue sur les différents types de violence décrits par la littérature africaine francophone.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en capable de:

i) Expliquer la poésie: la négritude et la poésie militante;
ii) Expliquer le théâtre: la violence dans le Théâtre africain;
iii) Expliquer le roman: l'anticolonialisme et la désillusion dans le roman africain, le thème de l'exil, de l'enfant-soldat, de la violence faite à la femme dans le roman des années 2000.
iv) Décrire la différence entre la poésie, le théâtre et le roman.
v) Analyser et juger la poésie, le théâtre et le roman dans le contexte africain

Module 8: Le français professionnel

Ce module permettra aux étudiants de français d' acquérir des compétences langagières professionnelles de niveau B1 liées au monde des affaires, du tourisme, de l'hôtellerie et de la restauration et de l'éducation.

Au terme de ce module, l'étudiant sera capable de:

i) Faire face à des complications au téléphone
ii) Composer un message d'accueil
iii) Parler de ses horaires, pauses, tâches, relations sociales au travail
iv) Rédiger un courrier professionnel
v) S'informer sur les moyens de transport
vi) Décrire les qualités des hôtels rwandais
vii) Décrire les sites touristiques du Rwanda

Module 9: Linguistique appliquée à l'enseignement du français

Le contenu indicatif

Ce module vise à faire acquérir aux étudiants des compétences de compréhension de la nécessité et de l'utilité d'enseigner le FLE en tenant compte des besoins des apprenants mais aussi des contraintes inhérentes à la mission des institutions de l'Éducation. Il vise également à décrire les notions de base de sociolinguistique et de psycholinguistique et à les appliquer dans l'enseignement du FLE. Enfin, il permet aux étudiants de pouvoir mener une enquête sociolinguistique en didactique du FLE au Rwanda.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en capable de:

i) Expliquer les notions de sociolinguistique et de psycholinguistique;
ii) Reconnaître l'acquisition et production du langage;
iii) Décrire la Sociolinguistique et psycholinguistique en didactique du FLE au Rwanda;
iv) Analyser la sociolinguistique et psycholinguistique en didactique du FLE au Rwanda;
v) Juger sociolinguistique et psycholinguistique en didactique du FLE au Rwanda.

Module 10: Le français sur objectifs universitaires

Français sur objectifs Universitaires

Ce module, destiné aux étudiants de la troisième année, vise à outiller les étudiants des connaissances et des compétences qui leur permettent de mener des travaux scientifiques et académiques. Le contenu de ce module consiste en une dissertation, les compétences orales à des fins académiques, la lecture dans un contexte académique, la lecture critique, la réflexion scientifique, le plagiat, sources d'information, citations et références, participation à un

colloque, préparer une communication, prendre la parole devant un public spécialisé, déterminer une problématique, synthétiser un document, élaborer un plan de recherche, rédiger un projet, un mémoire, une thèse.

Les objectifs d'apprentissage

A la fin de ce module, l'étudiant sera capable de*:*

i) Faire une lecture scientifique
ii) Synthétiser un document,
iii) Préparer une communication
iv) Prendre la parole devant un public spécialisé
v) Déterminer une problématique,
vi) Élaborer un plan de recherche,
vii) Rédiger un projet, un mémoire.

Module 11: Sémantique, lexicologie et traduction

Le contenu indicatif

Ce module vise à apprendre aux étudiants les notions de base de la sémantique, de l'analyse du discours, de la pragmatique, de la lexicologie et de la terminologie. Il vise également à les initier à la pratique et aux problèmes de traduction et d'interprétation au Rwanda et dans le monde.

Les objectifs d'apprentissage

A la fin de ce module,les étudiants seront en capable de:

i) Expliquer les principales théories sémantiques et analyse du discours;
ii) Décrire les méthodes de la pragmatique, actes de langage, sens implicite;
iii) Décrire les principales tendances lexicologiques, principes lexicographiques; élaboration du dictionnaire;
iv) Décrire les pratiques, méthodes et procédures terminologiques, politiques terminologiques, domaines privilégiés de l'activité terminologique et place de la terminologie dans la culture internationale,
v) Expliquer la définition et techniques de la traduction, typologie des traductions, travaux pratiques de traduction et d'interprétation.
vi) Appliquer les principales théories sémantiques et analyse du discours;
vii) Juger les pratiques, méthodes et procédures terminologiques, politiques terminologiques, domaines privilégiés de l'activité terminologique et place de la terminologie dans la culture internationale,
viii) Comparer, décrire les pratiques, méthodes et procédures terminologiques, politiques terminologiques, domaines privilégiés de l'activité terminologique et place de la terminologie dans la culture internationale.

Module 12: Linguistique et grammaire textuelle

Le contenu indicatif

Ce module vise à apprendre aux étudiants les fondements de la linguistique moderne et les domaines de la linguistique française. Il vise également à développer les compétences des étudiants en matière de construction d' un texte qui respecte les règles de la cohérence textuelle et de la cohésion du texte.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront capable de:

i) Expliquer en bref l'aperçu sur la linguistique contemporaine;
ii) Décrire les domaines de la linguistique française;
iii) Expliquer la typologie générale du texte;
iv) Analyser et juger la cohérence textuelle et la cohésion textuelle;
v) Produire la rédaction d'un texte complet sur le plan formel et cohérent sur le plan du contenu.

Module 13: Stylistique française et création littéraire

Le contenu indicatif

Ce module vise à apprendre aux étudiants les méthodes et techniques d'analyse stylistique des textes littéraires. Il vise également à les initier, par des exercices pratiques, aux techniques d'écriture de textes littéraires de différents genres.

Les objectifs d'apprentissage

Par la fin de ce module, les étudiants auront la connaissance et aptitudes sur les points suivants:

i) L'organisation d'un texte poétique, dramatique et prosaïque,
ii) Les procédés énonciatifs et lexicaux,
iii) Les constituants syntaxiques,
iv) La rhétorique et les figures de style,
v) La théorie et les étapes de la création littéraire,
vi) Les conseils pratiques pour devenir écrivain,
vii) Les techniques et pratiques d'écriture.

1.9.13 MODULI ZA KISWAHILI

SHAHADA YA ELIMU KATIKA KISWAHILI

Ufafanuzi Mfupi wa Malengo ya Ujifunzaji wa Somo la Kiswahili

Kiswahili ni lugha inayokua kwa kasi kimataifa huku ikiwa na nafasi ya kipekee katika utangamano wa Jumuiya ya Afrika na jumuiya nyingine za kikanda. Hivyo, programu hii inakusudia kwanza kuwajengea wanafunzi umilisi wa kimawasiliano na taaluma mbalimbali za Kiswahili. Hivyo kuwafanya wahitimu wa programu hii kuwa na uwezo wa kuwa walimu waliobobea katika stadi za Kiswahili kama vile fasihi, isimu, utamaduni, na ufundishaji wa lugha ya Kiswahili katika shule za sekondari.

Matokeo ya Ujifunzaji Yanayotarajiwa

Wanafunzi wanaohitimu katika programu hii wanatarajiwa waweze:

i) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano sahili na changamani katika zama za kidijiti na utandawazi;

ii) Kulinganisha na kulinganua muundo na sarufi ya Kiswahili dhidi ya lugha za Kibantu akidhirisha umahiri katika TEHAMA;

iii) Kuhakiki matini za fasihi andishi na fasihi simulizi akiweka mkazo katika kujenga maadili ya kitaifa na kiulimwengu;

iv) Kuitumia fasihi kama nyenzo ya kufundishia lugha na kutekeleza mtaala unaoegemea katika uwezo katika mazingira yanayohitaji kutumia stadi za kidijiti;

v) Kuyatumia maarifa ya isimu katika ufundishaji wa lugha ya Kiswahili katika madarasa ya lugha ya zama kidijiti;

vi) Kufanya tafiti zinazohusiana na lugha na isimu ili kuboresha ufundishaji wa Kiswahili;

vii) Kutumia nadharia za uhakiki katika kuhakiki kazi za fasihi zinazokusudia kujenga elimu jumuishi, uraia wa kiulimwengu, na kukuza maadili katika jamii

Jedwali 16: **Mgawanyo wa Moduli Zinazohusiana na Somo la Kiswahili**

Na:	**Moduli**	**Mwaka wa Msomo**	**Semista**	**Krediti**
1	Stadi za Mawasiliano	1	1	15
2	Utangulizi wa lugha na Misingi ya isimu	1	2	10
3	Utangulizi wa fasihi ya Kiswahili	1	2	10
4	Mawasiliano Changamani	2	1	10
5	Ushairi wa Kiswahili na Nathari Bunilizi	2	1	10
6	Fonolojia na Mofolojia ya Kiswahili	2	2	10
7	Drama na Fasihi Simulizi ya Kiswahili na Kiafrika	2	2	10

8	Sintaksia ya Kiswahili na Uchanganuzi wa kilongo	3	1	10
9	Isimujamii	3	1	10
10	Nadharia za Uhakiki na Uhakiki wa Fasihi	3	2	15
11	Isimu Linganishi na Athropolojia ya Kiswahili	4	1	10
12	Semantiki, Leksikografia na Pragmatiki	4	1	10
13	Elimumitindo ya Fasihi na Utunzi wa Bunilizi	4	1	10
Jumla ya Krediti				**140**

MODULI YA KWANZA: Stadi za Mawasiliano

Ufafanuzi

Moduli hii inaweka mkazo katika kukuza umilisi wa kimawasiliano katika stadi nne za lugha: kusikiliza, kuzungumza, kusoma na kuandika. Dhima mbalimbali za mawasiliano zinajadiliwa. Zaidi ya hivyo, mchakato wa mawasiliano unajadiliwa pamoja na aina mbalimbali za mawasiliano zilizopo. Aidha, vikwazo mbalimbali vya mawasiliano vinajadiliwa pamoja na utatuzi wa vikwazo vya mawasiliano.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kudhihirisha maarifa na ufahamu wa lugha na mawasiliano;

ii) Kukamilisha majukumu mbalimbali yanayohitaji umilisi wa kimawasiliano katika zama za kidijiti;

iii) Kushiriki kwa ukamilifu katika maingiliano ya kimawasilinao kwa malengo mabalimbali yaliyopo katika maisha halisi wakitumia nyenzo za kidijiti;

iv) Kuandika na kusoma kwa ufasaha matini za Kiswahili za kawaida na zile kutoka nyenzo za kidijiti;

v) Kuzungumza na kusikiliza kwa ufasaha katika muktadha wa mazungumzo ya Kiswahili ya ana kwa ana au kutumia nyenzo za kidijiti;

vi) Kuchanganua matini mbalimbali kwa malengo ya kubainisha muktadha wa mawasilino uliopo;

vii) Kulinganisha na kulinganua matini andishi na matini simulizi; na

viii) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano kwa kuheshimu tofauti za watu za dini, utamaduni..

MODULI YA PILI: Utangulizi wa Lugha na Misingi ya Isimu

Ufafanuzi

Moduli hii inashughulika na dhana za jumla kuhusu lugha pamoja na lugha ya Kiswahili kwa umahsusi. Moduli inaangaza kwa kifupi kuhusu sarufi ya Kiswahili na historia ya lugha ya Kiswahili. Aidha, inaweka msingi kuhusu maswala ya isimu katika lugha ya Kiswahili. Hivyo maana ya isimu na matawi mbalimbali ya isimu yanajadiliwa. Moduli inatoa fursa kwa wanafunzi kujuzwa majukumu mbalimbali ya wanaisimu.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufasili lugha na kueleza sifa za lugha kwa mdomo au kutumia nyenzo za TEHAMA;

ii) Kufafanua historia ya lugha ya Kiswahili kwa njia ya TEHAMA;

iii) Kuchanganua muundo na sarufi ya Kiswahili;

iv) Kutumia kwa ufasaha muundo na sarufi ya Kiswahili katika mawasiliano halisi ya ana kwa ana katika zama za kidijiti;

v) Kuelezea Matawi mbalimbali ya isimu kwa kutumia nyenzo za kidijiti;

vi) Kulinganisha na kutofautisha lugha ya Kiswahili na Kinyarwanda;

vii) Kutathimini mikabala tofauti iliyopo kuhusu asili ya Kiswahili;

viii) Kulinganisha na kutofautisha matawi mbalimbali ya isimu.

MODULI YA TATU: Utangulizi wa Fasihi ya Kiswahili

Ufafanuzi

Moduli hii inajikita katika kuweka bayana maarifa ya jumla kuhusu fasihi na maarifa mahsusi kuhusu fasihi ya Kiswahili. Hivyo, moduli inatalii maana ya afsihi, mitazamo kuhusu fasihi, asili ya fasihi, dhima za fasihi, na tanzu mbalimbali za fasihi na misingi ya uhakiki wa fasihi. Aidha, moduli inamtambulisha mwanafunzi katika kuitazama fasihi kama nyenzo ya ufundishaji wa lugha.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kueleza maana ya fasihi;

ii) Kufafanua mitazamo iliyopo kuhusu fasihi;

iii) Kujadili dhima za fasihi kutoka zama za kale mpaka katika zama za kidijiti;

iv) Kujadili kuhusu asili ya fasihi na hivyo kujenga msingi wa kuheshimu mawazo tofauti;

v) Kulinganisha na kulinganua tanzu za fasihi katika zama za kidijiti;

vi) Kuainisha tanzu za fasihi kwa kutumia nyenzo mbalimbali za kidijiti;

vii) Kuhakiki matini za fasihi andishi na fasihi simulizi kwa minajili ya kujenga misingi ya elimu jumuishi, uraia wa kiulimwengu ; na

viii) Kuitumia fasihi kama nyenzo ya ufundishaji na ujifunzaji wa lugha na utekelezaji wa mtaala unaoegemea katika uwezo katika zama za kidijiti.

MODULI YA NNE: Stadi za Mawasiliano Changamani

Ufafanuzi

Moduli hii inaweka mkazo katika kukuza umilisi wa mawasiliano changamani katika stadi nne za lugha: kusikiliza, kuzungumza, kusoma na kuandika. Aina tofauti za matini za mazungumzo na kimaandishi katika kiwango changamani ndizo zinazopewa kipaumbele katika kujenga stadi za lugha. Hivyo moduli inatoa fursa kwa mwanafunzi kuwa na umilisi wa matini changamani za kimazungumzo na kimaandishi.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua mawasiliano changamani katika stadi nne za lugha katika zama za kidijiti;

ii) Kubainisha aina tofauti za matini andishi zinazoakisi mawasiliano changamani kwa kutumia TEHAMA;

iii) Kubainisha aina tofauti za matini za kimazungumzo zinazoakisi mawasiliano changamani;

iv) Kushiriki kwa ukamilifu katika mawasiliano changamani kama vile usaili wa kazi, midahalo, mahojiano ya redioni au katika runinga;

v) Kuandika kwa ufasaha kwa kutumia nyenzo za kidijiti matini andishi kama vile barua ya kuomba kazi, kumbukumbu za mikutano, hotuba, hadithi za kubuni, risala, na matini za kitaaluma;

vi) Kutoa mrejesho sahihi kutokana na kusikiliza mawasiliano ya ana kwa ana au kutoka nyenzo za kidijiti mawasiliano changamani kama vile mdahalo, mkutano, majadiliano, taarifa ya habari, na mahubiri ya kanisani au msikitini;

vii) Kusoma matini changamani kama vile insha za hoja, kisanaa, matini za kitaaluma, mwongozo wa matumizi ya kitu, maelekezo ya kuzingatia, na kisha kuweza kutoa mrejesho sahihi; na

viii) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano yanayozingatia maadili, utu, na kuheshimu tofauti miongoni mwa binadamu.

MODULI YA TANO: Ushairi wa Kiswahili na Nathari Bunilizi (Krediti 10)

Ufafanuzi wa Moduli

Moduli hii inashughulikia ushairi wa Kiswahili kwa upande mmoja na nathari bunilizi kwa upande mwingine. Inaweka mkazo katika fasili na sifa bainifu za ushairi na nathari bunilizi. Aidha, historia ya ushairi wa Kiswahili pamoja na nathari bunilizi inashughulikiwa. Hivyo basi, moduli hii inakusudia kumpa mwanafunzi uelewa wa kina kuhusu ushairi wa Kiswahili pamoja na nathari bunilizi ikiwa pia ni nyenzo za ufundishaji lugha.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua ushairi wa Kiswahili na nathari bunilizi za Kiswahili;

ii) Kujadili sifa bainifu za ushairi wa Kiswahili, hadithi fupi andishi, na riwaya;

iii) Kulinganisha na kulinganua kumbo mbalimbali za ushairi wa Kiswahili;

iv) Kulinganisha na kulinganua kumbo mbalimbali za nathari bunilizi kama vile riwaya vs hadithi fupi andishi; hadithi fupi andishi vs hadithi simulizi; hadithi fupi andishi vs novela;

v) Kuhakiki ushairi wa Kiswahili na nathari bunilizi za Kiswahili kwa minajili ya kujenga maadili, thamani na mitazamo inayokubalika katika jamii;

vi) Kutumia ushairi au nathari bunilizi kama nyenzo ya kufundishai na kujifunzia lugha ya Kiswahili na kutekeleza mtaala unaoegemea katika uwezo;

vii) Kusimulia nathari bunilizi na kutongoa kumbo teule za ushairi kwa kuzingatia mahitaji ya zama za kidijiti; na

viii) Kutunga mashairi au hadithi fupi andishi kwa kutumia TEHAMA.

MADA YA SITA: Fonolojia na Mofolojia ya Kiswahili

Ufafanuzi

Moduli hii inafafanua vipengele mbalimbali vya kifonolojia na kimofolojia. Aidha, inaeleza kwa ujumla sio tu kuhusu unukuzi wa kifonolojia na kiotografia wa matini za kifasihi bali pia kategoria za kisarufi. Moduli hii pia inakusudia kuwawezesha wanafunzi kuelezea nomino, vivumishi, viwakilishi, na vitenzi kwa kuegemea katika miundo ya kimofolojia ya aina hizi za maneno.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi kuhusu fonolojia na mofolojia kwa kutumia nyenzo za kidijiti;

ii) Kufafanua muundo wa nomino, kivumishi, kiwakilishi na kitenzi katika sarufi ya Kiswahili;

iii) Kuelezea kategoria mbalimbali za kisarufi pamoja na miundo yake;

iv) Kutumia kategoria sahihi za maneno katika kuunda matini za Kiswahili kwa nyenzo za kidijiti;

v) Kutumia kwa usahihi kanuni za kimofo-fonolojia katika kuchanganua maneno ya Kiswahili kwa kutumia TEHAMA;

vi) Kubainisha elementi bainifu za fonolojia na mofolojia ya Kiswahili;

vii) Kutumia kwa usahihi vipengele vya sarufi ya Kiswahili katika mawasiliano mbalimbali; na;

viii) Kudhihirisha muundo wa kategoria za kisarufi za Kiswahili.

MODULI YA SABA: Drama na Fasihi Simulizi ya Kiswahili na Kiafrika

Ufafanuzi

Moduli hii inakusudia kumuwezesha mwanafunzi kuwa na uelewa wa kina wa drama na fasihi simulizi ya Kiswahili na Kiafrika. Moduli inatalii uhusiano wa drama na fasihi simulizi na nafasi yake katika kufanikisha malengo mbalimbali ya elimu. Hivyo moduli hii inaifanya drama na fasihi simulizi kuchukua mwelekeo wa kuwa nyenzo muhimu katika maisha ya mwanadamu toka kuzaliwa kwake mpaka kufa.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana na elementi za msingi za drama na fasihi simulizi;

ii) Kufafanua asili ya drama na uhusiano uliopo baina ya drama na fasihi simulizi;

iii) Kuelezea aina za drama na historia ya drama ya Kiswahili na fasihi simulizi;

iv) Kuanisha tanzu mbalimbali za fasihi simulizi na drama;

v) Kujadili changamoto za uanishaji wa tanzu za fasihi simulizi kwa kutumia TEHAMA;

vi) Kulinganisha na kulinganua fasihi simulizi ya Kiswahili dhidi ya ile ya Kiafrika;

vii) Kuhakiki drama na fasihi simulizi ya Kiswahili na Kiafrika na kuwasilisha matokeo kwa kutumia nyenzo za TEHAMA;

viii) Kutathimini ufaafu wa drama na fasihi simulizi kama nyenzo ya ufundishaji lugha na utekelezaji wa mtaala unaoegemea katika uwezo katika zama za kidijiti.

MODULI YA NANE: Sintaksia ya Kiswahili na Uchanganuzi Kilongo

Ufafanuzi

Moduli inashughulikia vipengele mbalimbali vya kisintaksia katika lugha ya Kiswahili. Aidha, inatalii dhana mbalimbali kuhusu uchanganuzi wa kilongo (disikozi) na kufafanua uhusiano wake na meneo mengine ya kiisimu. Aidha, sentensi sahili na zile changamano za Kiswahili zinachanganuliwa huku mkazo ukiwekwa katika vipashio vyake kuanzia kile kidogo kabisa mpaka kile kikubwa zaidi.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi kama vile sintaksia na uchanganuzi wa kilongo;

ii) Kufafanua miundo ya kisintaksia ya Kiswahili ya aina za maneno, sentensi sahili na sentensi changamani;

iii) Kujadili uhusiano baina ya sintaksia ya Kiswahili na vipengele vingine vya kisarufi;

iv) Kutumia aina za maneno muafaka katika kuunda sentensi za Kiswahili;

v) Kutumia nadharia tofauti katika kubainisha na kutofautisha sentensi za Kiswahili na kilongo;

vi) Kutathimini kanuni za kuanisha kilongo na sentensi za Kiswahili;

vii) Kufanya mawasiliano kwa ufasaha kutokana na kuzingatia kilongo na sintaksia ya Kiswahili na nyenzo anuai za kidijiti; na

viii) Kuandaa utafiti kuhusu diskozi na sintaksia ya Kiswahili na kuzisambaza kwa kutumia nyenzo za TEHAMA.

MODULI YA TISA: Isimujamii

Ufafanuzi

Malengo ya moduli hii ni kumuwezesha mwanafunzi kufafanua michakato tofauti inayohusika katika upataji lugha, matumizi ya lugha katika jamii, na upoteaji wa lugha. Moduli itawapatia wanafunzi uwezo wa kuelezea elementi za msingi za isimujamii, upangaji lugha na utumizi wa lugha katika Afrika Mashariki kwa malengo anuai.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana muhimu za isimujamii kama vile mawanda ya isimujamii, lugha, ulumbi, uchanganyaji lugha na uchanganyaji misimbo;

ii) Kujadili changamoto zinazoikabili lugha ya Kiswahili kama lugha ya pili na ya kigeni na kuziwasilisha kwa kutumia TEHAMA;

iii) Kulinganisha na kulinganua lahaja mbalimbali za Kiswahili;

iv) Kujadili mchakato wa upangaji lugha;

v) Kujadili sera ya lugha nchini Rwanda na katika nchi za Afrika Masharikikatika zama za kidjiti na dunia ya utandawazi;

vi) Kujadili uhusiano wa lugha na jamii katika zama hizi za kidijiti;

vii) Kutathimini sera ya lugha ya Kiswahili Afrika Mashariki; na

viii) Kutathimini mchakato wa upangaji lugha ya Kiswahili katika nchi za Afrika Mashariki.

MODULI YA KUMI: Nadharia na Uhakiki wa Fasihi (Krediti 20)

Ufafanuzi

Moduli hii inatalii uhakiki wa matini za fasihi kwa ujumla kwa kujiegemeza katika nadharia za uhakiki wa fasihi. Hivyo, mwanafunzi kwa mara ya kwanza, anapewa nafasi ya kujifunza nadharia kuu za uhakiki; na hivyo kumwezesha kuwa na uwezo wa kufanya uhakiki wa matini ya kifasihi kwa kuegemea katika mielekeo tofauti. Moduli itawasaidia wanafunzi kujenga maarifa na stadi za kichambuzi na kihakiki.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi kama vile uhakiki, nadharia, nadharia za uhakiki, na nadharia ya fasihi;

ii) Kulinganisha na kulinganua nadharia za uhakiki dhidi ya uhakiki;

iii) Kujadili dhima ya mhakiki na uhakiki toka awali hadi katika zama hizi za kidijiti;

iv) Kufafanua nadharia kuu za uhakiki (urasimi wa kirusi, umuundo, ubaada muundo, umarxi, uhistoria mpya, udhanaishi; ufeministi, uhalisia, na uhalisia mazingaombwe);

v) Kutumia nadharia ya uhakiki katika kufanya uhakiki na kuwasilisha matokeo kwa njia za kidijiti;

vi) Kuchagua nadharia mwafaka ya uhakiki kuendana na matini inayotakiwa kuhakikiwa;

vii) Kulinganisha na kulinganua nadharia za uhakiki wa fasihi; na

viii) Kutathimini nafasi ya uhakiki wa fasihi katika ufundishaji wa lugha ya pili na utekelezaji wa mtaala unaoegemea katika uwezo katika zama za kidijiti.

MODULI YA KUMI NA MOJA: Isimu Linganishi na Anthropolojia ya Kiswahili

Ufafanuzi

Moduli hii inakusudia kuwawezesha wanafunzi kubainisha na kufafanua mfanano wa kimofu na kimaana baina ya lugha za kibantu; na hivyo kuwawezesha wanafunzi kufanya ufafanuzi wa lugha za kibantu. Wanafunzi wanakusudiwa kubainisha elementi kuu za isimu historia na isimu linganishi, Utamaduni wa Waswahili, anthropolojia ya kiisimu, ikiwa ni pamoja na kulinganisha muundo wa Kiswahili dhidi ya lugha nyingine za Kibantu.

Matokeo ya Ujifunzaji

i) Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

ii) Kufafanua dhana za msingi katika moduli kama vile utamaduni wa Waswahili, nadharia za anthropolojia ya kiisimu, isimu historia, na isimu linganishi;

iii) Kuelezea mbinu za kufafanua lugha za kibantu;

iv) Kuchanganua uhusiano uliopo baina ya utamaduni, wazo, na lugha;

v) Kuchambua muundo wa lugha ya Kiswahili kifonolojia, kisintaksia na kimofolojia;

vi) Kutumia nadharia muafaka ili kudhihirisha kufanana na kutofautiana baina ya Kiswahili na Kinyarwanda; na

vii) Kufanya utafiti kuhusu maswala ya isimu linganishi na isimu anthropolojia.

MODULI YA KUMI NA MBILI: Semantiki na Pragmatiki

Ufafanuzi

Malengo ya moduli hii ni kuwawezesha wanafunzi kufafanua kanuni za msingi kuhusu leksikografia, uundaji wa isitilahi, semantiki na pragimatiki. Katika moduli hii wanafunzi wataunda kazi za kileksikografia na kushiriki katika uundaji wa msamiati katika lugha ya Kiswahili. Aidha, kuna uchanganuzi wa kihakiki wa leksikimu na kamusi zilizoandikwa kwa Kiswahili au kuhusu Kiswahili.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana muhimu za kama vile leksikografia, leksimu, semantiki, pragmatiki, na kamusi ya Kiswahili;

ii) Kufafanua uhusiano uliopo baina ya leksikografia, uundaji wa istilahi, semantiki na pragmatiki;

iii) Kujadili aina mbalimbali za maana, nadharia za maana, na mahusiano ya kifahiwa;

iv) Kujadili aina za urejeleo, udhanilizi na nadharia ya vimanilizi vya mazungumzo;

v) Kutumia lugha kwa usahihi kwa kuzingatia muktadha;

vi) Kufanya tafiti ili kuunda au kuhusu istilahi zinazotumika katika isimu, fasihi, na lugha kwa jumla kwa kutumia nyenzo mbalimbali za kidijiti;

vii) Kufanya tathimini ya kamusi za Kiswahili zilizopo pamoja na leksikimu; na

viii) Kuandika aina mbalimbali za leksikimu na kamusi za Kiswahili akitumia stadi za TEHAMA.

MODULI YA KUMI NA TATU: Elimumitindo ya Fasihi na Utunzi wa Bunilizi

Ufafanuzi

Moduli hii inatalii dhana ya elimumitindo ambapo dhana ya mtindo katika maumbo yake tofauti inajadiliwa. Aidha, tofauti ya elimumitindo ya isimu na ile ya fasihi inabainishwa. Kazi mbalimbali za fasihi zinatumiwa katika kubainisha mitindo inayojitokeza. Zaidi ya hivyo, moduli inajikita katika utunzi wa kazi za fasihi. Ufafanuzi wa kinadharia kuhusu utunzi wa bunilizi mbalimbali unapewa nafasi muhimu.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana ya mtindo na elimumitindo ya fasihi;

ii) Kujadili mitazamo mbalimbali kuhusu mtindo;

iii) Kufafanua malengo ya elimumitindo ya kifasihi

iv) Kueleza sifa za matini zinashughulikiwa na elimumitindo;

v) Kujadili zana za kiisimu zitumikazo katika uchambuzi wa matini za kifasihi;

vi) Kutathimini viwango vitatu vya uchambuzi wa kiisimu: kiwango cha kifoni-grafolojia, kiwango cha kileksika- semantiki, na kiwango cha kisintaksia;

vii) Kulinganisha na kulinganua utunzi wa bunilizi tofauti kinadharia; na

viii) Kutumia elimumitindo ya fasihi katika utunzi wa bunilizi katika zama za kidijiti.

1.10 Bachelor of Early Childhood Development (ECD) modules

Brief description of the aims

This program aims at equipping student teachers with appropriate competences that enable them to teach Early Childhood Development (ECD) related courses in teacher training institutions. In addition, the programme enables graduates to train pre-school teachers for their continuous professional development (CPD). It also prepares student teachers to work with partner organizations in the field of Early Childhood Development.

Learning outcomes

By the end of the programme, students should be able to:

i) Explain concepts related to ECD,

ii) Apply ECD principles in schools and beyond,

iii) Model ECD best practices to student teachers and trainees,

iv) Advocate for children's rights and adequate services to all children,

v) Mobilize parents and community to be involved in their children's education,

vi) Value ECD services in schools and community,

vii) Innovate ways of taking care of young children.

Table 1 17: **Distribution of ECD modules**

S/N	Module	Year of study	Semester	Credits
1	Foundations and theories of ECE	1	1	15
2	Parents and Community Involvement in ECE	1	1	15
3	Child growth and Development	1	2	20
4	Play Activities in ECD	1	2	20
5	Arts and Craft teaching in ECD	2	1	20
6	Early Childhood Curriculum Development	2	1	20
7	Child's Rights and Advocacy	2	2	10
8	Children with Special Educational Needs in ECD	2	2	15

9	Material Development for ECD	2	2	15
10	Instructional Technology in ECD	3	1	20
11	Language and Literacy Development in ECD	3	1	20
12	Mathematics and Science for ECD	3	2	20
13	Social Studies for ECD	3	2	15
14	Child's Health care in ECD	4	1	15
15	Children's Assessment and Instructional Evaluation	4	1	15
16	Administration and Supervision of Instruction in Early Childhood Settings	4	1	10
17	Guidance and Counseling in ECD	4	1	15
Total credits				**280**

Module 1: Foundations and Theories of Early-Childhood Education

Indicative content

This module introduces students to the field of early childhood education. It encompasses the following topics: introduction to early childhood education; philosophical and sociological foundations of early childhood education; history of early childhood education, theories of early childhood education; policies and current trends in early childhood education.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concept of early childhood development,

ii) Explore the philosophical and sociological foundations of early childhood education,

iii) Describe history of early childhood education,

iv) Apply theories of early childhood education in school and beyond,

v) Work with others to bring about change, development and new thinking in relation to policies and current trends in early childhood education,

Module 2: Parents and Community Involvement in Early Childhood Education

Indicative content

This module prepares student teachers to engage parents and community in the learning of their young children. It mainly covers the concepts related to parents and community involvement; the nature of parental and community involvement and partnerships; techniques to promote and encourage parental involvement and support of families; factors that hinder

parental involvement; community mobilization techniques; roles and responsibilities of parents and community in ECE; strategies for working effectively with parents and communities.

Learning outcomes

By the end of this module, students should be able to:

i) Explain concepts related to parents and community involvement in ECE,

ii) Apply techniques to promote and encourage parental involvement and support of families,

iii) Devise measures to overcome factors that hinder parental involvement,

iv) Apply community mobilization techniques to involve parents in their children's education,

v) Devise strategies for working effectively with parents and communities.

Module 3: Child Growth and Development

Indicative content

This module intends to make student teachers aware of the physical and psychological changes that occur in human development. The content of this module includes: introduction to human growth and development (meaning and scope of human development, principles, determinants, and factors of growth and development); periods of prenatal development and birth; physical, cognitive, socio-emotional, personality, and moral development during infancy, early childhood, middle and late childhood, adolescence, and adulthood; language development; theories of human development (E.g.: Freud's psychosexual development theory, Erikson's psychosocial development theory, Vygotsky's sociocultural theory).

Learning outcomes

By the end of this module, students should be able to:

i) Explain the processes of human growth and development,

ii) Describe major developmental changes that occur during prenatal, infancy, early childhood, middle and late childhood, adolescence, and adulthood,

iii) Apply theories of human development while teaching early childhood learners,

iv) Draw educational implications of the developmental changes at every stage of human development,

v) Take personal responsibility for decision making for preschool children.

Module 4: Play Activities in Early Childhood Education

Indicative content

The aim of this module is to enable student teachers to use play activities in the education of young children. The content of this module includes mainly the following topics: Child plays (indoor and outdoor plays); plays and games for child development; safety issues in child's

play (the playground and play environment in early childhood settings, major causes of children's accidents during play activities); play and games in the Rwandan context; child's play in the era of technology; techniques to conduct and facilitate children's play and games.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts related to child's play,
ii) Draw the importance of child play in child's development,
iii) Demonstrate originality and creativity in child's play and games,
iv) Adapt child's games/plays from different cultures to the Rwandan context,
v) Apply appropriate techniques to conduct and facilitate children's play and games.

Module 5: Arts and Craft Teaching in Early Childhood Education

Indicative content

This module equips student teachers with necessary skills to teach young children Arts and Craft. The content that will be covered in this module includes: The concept and objectives of teaching Art and Crafts to young children; Visual and performing arts; principles and elements of child Art; Art and Crafts curriculum for early childhood; simple tool creation; skills and techniques to be developed in children's arts; appropriate Art and Craft activities and materials; integration of Art and Craft in other learning areas; designing and using Art and Crafts instructional materials; detection techniques of art skills in young children, assessment of children's art and crafts work.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the rationale of teaching arts and crafts to young children,
ii) Apply the principles of child arts and crafts curriculum for ECD,
iii) Design appropriate art and craft activities and materials for ECD,
iv) Integrate arts and crafts in other learning areas,
v) Assess children's art and craft work.

Module 6: Early Childhood Curriculum Development

Indicative content

This module allows student teachers to create a conducive learning environment and develop an appropriate early childhood curriculum. It covers the following topics: setting the stage for learning (planning and implementing effective small-group activities and whole group activities, organizing the learning environment, child guidance, individually appropriate instruction); children's comprehensive curriculum domains (Aesthetic domain, affective domain, cognitive domain, language domain, physical domain, social domain); curriculum integration: Thematic approach.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the process of early childhood curriculum development,

ii) Set a conducive learning environment for young children,

iii) Develop appropriate learning activities that address individual differences among learners,

iv) Translate the early childhood comprehensive curriculum into activities that address different learning domains;

v) Establish the interconnection among different learning areas in the early childhood comprehensive curriculum.

Module 7: Child's Rights and Advocacy

Indicative content

The module makes student teachers aware of the children's rights to advocate for them. The content of this module includes fundamental children's rights; the rationale for child rights approaches; children's rights versus children's responsibilities within the family, community, and the school; international conventions and national laws relating to children's rights and welfare; child abuse and child neglect, advocating for children's rights.

Learning outcomes

By the end of this module, students should be able to:

i) Describe children's rights and the rationale for child rights approaches,

ii) Promote children's rights versus children's responsibilities within the family, the community, and the school;

iii) Advocate for children's rights;

iv) Work with others to bring about change in fighting child abuse and child neglect;

Module 8: Children with Special Educational Needs in ECD

Indicative content

The module equips student teachers with knowledge and understanding of learners with special educational needs and helps them develop a positive attitude towards these learners. The content of this module includes: concepts of impairment; disability; handicap; Special Educational Needs (SEN); Special Needs Education (SNE); inclusive education; differentiated learning; influencers of SEN in young children (mental retardation, physical disability, visual impairment, behavioral difficulties, hearing impairment, etc.); The effect of disability on the child's learning, the society's attitudes towards children with disabilities and other SEN, responding appropriately to children with special educational needs, Services and resources required in SNE for young children.

Learning outcomes

By the end of this module, students should be able to:

i) Explain SEN related concepts,
ii) Analyze the effect of disability on the child's learning,
iii) Assess the society's attitudes towards children with SEN,
iv) Provide services required to children with SEN.

Module 9: Material Development for ECD

Indicative content

This module allows student teachers to be able to design instructional materials for early childhood learners. Regarding early childhood learners, the module focuses on the rationale for developing educational materials; types and purposes of educational materials; designing and improvising educational materials; hands-on activities to produce sample materials; managing educational materials; setting and displaying the learning environment.

Learning outcomes

By the end of this module, students should be able to:

i) Setting a conducive learning environment for ECD
ii) Value the relevance of educational materials in ECD,
iii) Design educational materials for ECD,
iv) Produce educational materials in ECD,

Module 10: Instructional Technology in ECD

Indicative content

This module makes student teachers able to use ICT in ECD. It encompasses Information and Communication Technology (ICT) for early childhood development, early childhood digital teaching and learning, multimedia for teaching young children, technology for children holistic development, stimulating technology skills in young children.

Learning outcomes

By the end of this module, students should be able to:

i) Explore ICT tools and multimedia in ECD,
ii) Describe ways of digital teaching and learning in ECD,
iii) Apply technological tools for children's holistic development,
iv) Apply appropriate techniques to stimulate technological skills in young children,
v) Take personal responsibility for decision making about using multimedia in ECD.

Module 11: Language and Literacy Development in ECD

Indicative content

The aim of this module is to allow student teachers to develop language and literacy skills in early childhood learners. The content covered under this module includes the following: The nature and functions of human language; language development theories (Cognitivists, Behaviorists, Naturalists); language acquisition; patterns of language use in young children; approaches in teaching literacy to young children (activities to develop speaking, listening, early reading and writing skills); literacy development across the curriculum; assessment of literacy skills (listening, speaking, reading and writing) in ECD.

Learning outcomes

By the end of this module, students should be able to:

i) Explain language development theories,

ii) Apply language development theories when teaching the language to young children,

iii) Critically analyse the process of language acquisition,

iv) Apply appropriate approaches in teaching literacy to young children.

Module 12: Mathematics and Science for ECE

Indicative content

The aim of this module is to allow student teachers to develop mathematics and numeracy skills in early childhood learners. The content that is covered in this module includes: The nature of science and mathematics; Basics of science and mathematical concepts (matter, energy, systems, interactions, operations, elementary and spatial geometry, measurements approximations, estimations, elementary statistics); Factors affecting the development of scientific and mathematical concepts in young children; approaches, methods and techniques of teachings science and mathematics in pre-schools; description of the pre-primary curriculum.

Learning outcomes

By the end of this module, students should be able to:

i) Explain basic concepts of science and mathematics,

ii) Discuss factors affecting the development of scientific and mathematical concepts in young children,

iii) Apply approaches, methods and techniques of teaching science and mathematics in pre-schools,

iv) Implement effectively the pre-primary curriculum.

Module 13: Social Studies for ECE

Indicative content

The aim of this module is to produce teachers who can develop in early childhood learners the interest in their world they live in. This module discusses the definition, rationale, and goals of social studies in the ECE; social studies versus the discovery of the world in early childhood settings; developmental criteria to consider while planning social studies for the discovery of the world; an overview of research in elementary social studies (current status of social studies in the elementary school, pre-service and in-service education for teachers of early childhood/elementary social studies); conflict management (causes, prevention, resolution and reconciliation).

Learning outcomes

By the end of this module, students should be able to:

i) Justify the rationale and goals of social studies in the ECE,

ii) Assess the relationship between social studies versus the discovery of the world in early childhood settings,

iii) Plan social studies for the discovery of the world in accordance with developmental criteria,

iv) Work with others to bring about change in the world by applying conflict management techniques to ensure a conducive learning environment in ECE.

Module 14: Child's Healthcare in ECD

Indicative content

The module of health care in ECD aims to provide student teachers with knowledge and understanding as well as skills of the conditions in which healthcare is considered during prenatal, infancy and early childhood periods. This module encompasses the following topics: prenatal, post-natal health needs for a child's holistic development; health conditions for smooth development process; early detection of childhood illness and disease; preventive and curative measures for the promotion of health practices.

Learning outcomes

By the end of this module, students should be able to:

i) Explore prenatal, post-natal child health needs for a holistic development,

ii) Describe the child's health needs and conditions for smooth development process,

iii) Diagnose early childhood illness and disease state,

iv) Assess preventive and curative measures for the promotion of early children's health practices.

Module 15: Child's Assessment and Instructional Evaluation

Indicative content

The purpose of this module is to allow student teachers to be able to assess young children to identify their needs and evaluate a teaching and learning activity. The module encompasses the following topics: Theoretical bases and concepts related to child assessment; methods of child assessment (observations, portfolios, educator ratings, parent ratings, standardized tests); instructional assessment (diagnostic, formative and summative assessment); contemporary issues in child assessment (early brain growth and development, interrelationship between earliest experiences and social and moral competences, curriculum decisions); tools for evaluation and assessment of young children.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the basic concepts related to child assessment,

ii) Apply child assessment methods to identify children's needs,

iii) Demonstrate originality and creativity in dealing with contemporary issues in child assessment,

iv) Act autonomously in conducting instructional assessment to measure children's learning.

Module 16: Administration and Supervision of Instruction in Early-Childhood Settings

Indicative content

This module aims to equip student teachers with knowledge, skills, and values to administer and supervise instruction in ECD. It covers mainly approaches to educational administration and supervision; the process of administration and supervision of instruction in early childhood settings; situational analysis, managing and solving problems in early childhood development settings; data use for informed decision making.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the approaches to educational administration and supervision to lead learning in ECD settings,

ii) Conduct situational analysis to solve problems in ECD settings,

iii) Supervise the learning in ECD setting,

iv) Use data to take informed decisions in ECD,

v) Critically conceptualize and analyze the process of administration and supervision.

Module 17: Guidance and Counseling in ECE

Indicative content

The module aims at equipping student teachers with necessary competences that allow them to cope with learners' needs in guidance and counseling. This module encompasses the following topics: guidance, counseling and other related concepts, difference between guidance and counseling; the rationale of guidance and counseling; types of guidance and counseling; scope of guidance and counseling, principles of guidance and counseling, guidance and counseling for effective early childhood development and education.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts related to guidance and counseling,

ii) Draw the scope of guidance and counseling in ECD,

iii) Critically identify, define, conceptualize and analyze issues related to guidance and counseling,

iv) Apply the principles and methods of guidance and counseling to improve learning in ECD.

1.11 General modules

1.10.1 General English

Indicative content

The module aims to develop year one students' communicative competence in English as a medium of teaching and learning in higher education. The focus is on the practice of writing, speaking, listening and reading geared towards the modules on offer in year one.

Learning outcomes

By the end of the module, students should be able to:

i) Produce accurate and coherent texts in English on variety of current topics;

ii) Select relevant reading materials to use in order to perform various assignments;

iii) Make a short individual presentation in English on any current topic;

iv) Participate in group discussion in and outside class;

v) Locate the areas of English language difficulties among peers;

vi) Detect general and specific information from the intermediate English listening materials.

1.10.2 Introduction to Information and Communication Technology

Indicative content

This module of study identifies the essential knowledge, skills, and attitude that all students need to be active lifelong learners in an information technology intensive environment. The computer skills standard course of study involves the development of skills over time. These skills become building blocks with which to meet the challenges of personal and professional life. The module is designed to form the foundation for continuous learning with introduction to ICT, ICT fundamentals, advanced MS Office/OpenOffice (word, excel, access and PPT), Use of the Internet for research (e-Resources, OERs & MOOCs, digital library, Ethics (plagiarism, copyright, privacy), security of the data, emerging trends such as collaborative tools (social media & cloud services), ICT for specific subject, Practice I related to ICT fundamentals, MS applications, and Internet and Practical II related to Collaborative tools, social media and cloud computing services.

Learning outcomes

i) Utilize basic knowledge and skills of computers in learning practices.

ii) Apply MS Office suite & Open Office in daily life activities.

iii) Use the internet for research and sharing information.

iv) Integrate ICT in learning of different subjects.

v) Adapt to ever changing innovations and use ICT skills in long-life learning.

vi) Use computers in numerical and financial calculation of day-to-day life.

vii) Use ICT in mitigating global issues like climate change, conflict resolution, and global peace building.

viii) Use ICT learning opportunities such as e-learning to foster knowledge and skills development.

1.10.3 Citizenship and Transformative Education

Indicative content

This module has been designed with the aim to foster active and responsible participation in democratic societies by developing knowledge, skills, and values related to civic education, integrity systems, human rights and citizenship education, conflict resolution and peace education. Citizenship and transformative education engage examination of power changes, promoting ethical values, cultivating empathy and stimulating inclusiveness and diversity. The module stresses the importance of active learning, dialogue, and experiential opportunities that empower individuals to make informed decisions. It highlights key concepts such as identity, integrity, conflict, and peace. It focuses on personal and societal change by rising critical thinking and self-reflection.

Learning outcomes

By the end of this module, students will be able to:

i) Explain the concepts of citizenship, state-building, and national identity

ii) Highlight the dynamics of Rwandan history in connection with citizenship, state-building, and national identity
iii) Identify the mechanisms of promoting integrity in Rwanda
iv) Explain the major theories, evolution, and core characteristics of human rights
v) Identify the means of promoting and protecting human rights in Rwanda and beyond
vi) Express a high degree of autonomy and integrity
vii) Demonstrate full responsibility and respect for other people regardless of their origin, age, culture, religion, nationality, and gender.
viii) Apply models and various approaches to conflict resolution and peacebuilding

1.10.4 English for Specific Purposes

Indicative content

The module aims to help year one students attain the required level of English proficiency in their specific areas of study. Special focus is put on the development of students' communicative competence (writing and speaking) in all subjects making up the specific academic programme.

Learning outcomes

By the end of the module, students should be able to:

i) Identify the appropriate materials used to work on various written assignments;
ii) Produce accurate and coherent text-types geared towards a specific course of study;
iii) Confidently use English to express various functions either in speaking or writing: request, complaint/dissatisfaction, gratefulness, apology, admiration, praise, sympathy, good wishes, etc.
iv) Participate in peer and group discussion in and outside class;
v) Share the critical learned information with a specific audience.

1.10.5 Entrepreneurship for Educators

Indicative content

This module aims to equip students with the needed skills to integrate some learning activities and approaches fostering entrepreneurial mindsets towards the creation of new ideas and creative solutions. It facilitates the development of an entrepreneurial mind-set and equips students with necessary cutting-edge knowledge and skills vital for generating value in a knowledge-based economy. The module is designed to teach students how to start and manage a successful new business. This module covers a variety of topics, including ideation, opportunity identification, business model development, funding and management of new ventures, innovation, operations, and growth management, exit strategies and successful planning, marketing strategies, project management and legal and ethical issues concerning new venture management.

Learning outcomes

By the end of the module, students should be able to:

i) Describe the opportunity to raise awareness of self-employment as a career option,

ii) Describe the pathways for becoming an entrepreneur in a wide array of settings including large organization, start-ups, universities, government, intermediaries, and society;

iii) Describe the process of planning, launching, and managing new business ventures.

iv) Analyze key factors that contribute to a successful business plan, including market research, financial forecasting, and organizational strategy

v) Apply financial analysis tools to evaluate the financial performance of a business, make informed investment decisions, and manage cash flow effectively

vi) Develop leadership and management skills to effectively lead and motivate teams and drive business growth

vii) Apply theory to practice by leveraging theoretical insights for the development of the innovative enterprise.

viii) Develop effective communication and presentation skills to articulate and pitch business plans to stakeholders such as investors, partners, and customers.

PART II

BENCHMARKS FOR ADVANCED DIPLOMA OF EDUCATION

PART 2: BENCHMARKS FOR ADVANCED DIPLOMA OF EDUCATION

2.1 Programme Aim and Rationale

Quality of education has been credited for enhancing the Human Development Index. As Rwanda strives to achieve quality education for all and become a knowledge-based economy, efforts should be harnessed to ensure teacher standards are kept at the highest to uphold the quality of education. These endeavors have engendered many vacancies in Rwanda's education domain today. More specifically, with the introduction of Nine-Year Basic Education (9YBE) and Twelve-Year Basic Education (12 YBE) programmes, the country is struggling to find qualified and competent subject teachers in secondary schools (both lower and upper levels). The programme development has been motivated by Rwanda's current teacher supply and demand. In fact, from 2018 to 2022, the government of Rwanda has constructed about 25,214 new classrooms, surpassing the initial target of 22,500 classrooms. The aim was to phase out the double shift system, reduce the overclouded classes, and reduce the long distance for children to reach schools. In response, there is a justified need to train more teachers to satisfy the secondary school teachers' demand.

In this perspective, HLIs will manage the programme delivery in line with the Government's mission of building a knowledge-based economy. In addition to the Vision 2050 development plans, the Government's 2017–2024 National Strategy for Transformation (NST) embraces the SDGs and focuses on three pillars: social transformation, economic transformation, and transformational governance. The overarching goal for the social transformation pillar is to develop Rwandans into capable and skilled people with quality living standards and a stable and secure society. This is enabled by the increase in the number of qualified teachers and improving their welfare. The programme seeks to produce graduate teachers who have the requisite knowledge, skills, and values relevant to not only be competent in the skills of delivery but also be specialized in their areas of interest, ability and aspirations.

The content scope of the programme is tailored to produce teachers with the knowledge of the subject, knowledge of the child, pedagogy and ICT literacy and integration in education to teach in secondary schools up to Level IV (General and TVET). That is why the programme has been framed to include education foundations, subject-related modules, psychology, teaching methods, ICT literacy, and integration in education. Therefore, this programme seeks to give the knowledge and skills in teaching to both teachers and non-teachers aspiring to become teachers in secondary schools up to Level IV (General and TVET). Graduates will be the change agents, the young teachers with an appreciation of modern teaching and learning approaches, clear vision and expertise who can carry forward the region's secondary schools to international standards of excellence.

The overall programme comprises four subject clusters: education-related modules, subject-related modules, general modules, and school attachment/practice. To achieve this "making closer links between the content of education and the needs of the labor market" is paramount.

2.2 Programme objectives

The Advanced Diploma of Education Programme intends to contribute to solving the problem of the low rate of qualified teachers for secondary schools up to Level IV (General Education or TVET) in Rwanda. Thus, the programme objectives are to:

i) To prepare teachers with in-depth knowledge of specific subjects, pedagogy, understanding of the learners and education systems;

ii) To prepare the student-teachers for an active career in the teaching profession;

iii) To provide a comprehensive training background necessary for the students to become competent teachers;

iv) To enable student-teachers deal appropriately with individual differences among learners;

v) To develop the intellectual, professional and social competences that will enable the student to become problem-solver in the education sector and the community;

vi) To help the student make use of subject knowledge in the analysis of complex situations concerning human learning and development.

2.3 Programme Learning Outcomes

The purpose of the learning outcomes is to describe clearly what the learners should be able to demonstrate by the end of the programme or a module. Learning outcomes are statements of the knowledge, skills and attitude that a learner is able to demonstrate on the completion of a programme or module.

The HLIs will be required to compare the existing learning outcomes of their accredited education related programmes with these benchmarks and see what is missing or what should be redesigned or reformulated.

Based on the Ministerial order Nº001/MINEDUC/2021 of 20/10//2021 determining standards in education, the Higher Education Council programme development framework and the Bloom's Taxonomy learning outcomes are divided into the following:

i) Knowledge and understanding:

ii) Applied knowledge, understanding and practice

iii) Generic cognitive skills

iv) Communication, ICT and numeracy skills

v) Autonomy, responsibility and working with others

Thus, the following learning outcomes have been formulated, to be used as benchmarks for the Advanced Diploma of education.

Table 18: **Expected learning outcomes for Advanced Diploma Education**

Knowledge and understanding	The graduate should be able to demonstrate systematic knowledge and understanding of: i) The scope, features, and main areas of the subjects of specialization ii) Core theories, principles and concepts in the subjects of specialization iii) Current issues related to education in general and teaching and learning of the subjects of specialization.
Applied knowledge, understanding and practice	The graduate should be able to: i) Use a defined range of principles, techniques, practices, standards and methods associated with the subjects of specialization

	ii) Apply acquired knowledge, skills and understanding to facilitate teaching and learning activities iii) Adapt teaching and learning approaches, methods and techniques to the needs of the learners
Generic Cognitive Skills	The graduate should be able to: i) Undertake critical analysis, evaluation and synthesis of ideas, concepts, information and issues to enhance students' learning ii) Use a range of approaches to formulate evidence-based solutions to educational problems. iii) Bring innovation and creativity in the process of curriculum development
Communication, ICT and numeracy skills	The graduate should be able to demonstrate ability to: i) Develop and communicate well-formed ideas and opinions using appropriate academic, professional, or occupational discourses to enhance learning ii) Adapt personal interaction style to the level of the learners with diverse needs iii) Use a range of standard applications to process and obtain data iv) Identify appropriate ICT tools, methodologies and techniques effectively facilitate learning
Autonomy, responsibility and working with others	The graduate should be able to demonstrate ability to: i) Exercise autonomy and initiative to facilitate teaching and learning activities in a professional manner; ii) Take significant managerial or supervisory responsibility in an educational setting; iii) Work with other stakeholders' support teaching and learning process.

2.4 Translating learning outcomes into the programme

The Advanced Diploma of Education qualification consists of 365 credits and is available to be studied day-time and the programme duration is 3 years which is equal to 6 semesters. However, a current teacher needing to upgrade his/her education level/ or become qualified in the field of teacher education can be admitted in Holiday (School-Based) mode or distance learning.

One additional year will be added to the duration of the programme for a student who enrolls in a Holiday (School-Based) mode and distance learning. Only in-service teachers are eligible to a Holiday (School-Based) and distance learning modes.

In the design or redesign of the Advanced Diploma of Education Programme, the higher learning institution (s) should consider the following structure as benchmarks for the structure of the programme.

Table 19: **General structure of advanced diploma in education**

YEAR	SEMESTER	CODE	MODULE	CU
ONE	**1**		Philosophical and Sociological Foundations of Education Subject 1 Subject 2 General English ICT	10 25 25 10 10
	Sub-Total Number of Credits per Semester			**80**
	2		Educational and Human Developmental Psychology Theories and Practice of Teaching and Learning Teaching Practice Subject 1 Subject 2 Entrepreneurship for Educators Citizenship and Transformative Education	10 10 5 25 25 5 5
	Sub-Total Number of Credits per Semester			**85**
TOTAL NUMBER OF CREDITS PER YEAR I				**165**
TWO	**1**		Curriculum development and Instruction Subject Specific Teaching Methods (subject 1 and 2) Subject 1 Subject 2	10 15 30 30
	Sub-Total Number of Credits per Semester			**85**
	2		Subject 1 Subject 2 School attachment I	20 20 5
	Sub-Total Number of Credits per Semester			**45**
TOTAL NUMBER OF CREDITS YEAR 2				**130**
THREE	**1**		Professional Ethics for Teachers Subject 1 Subject 2 Educational Measurement and Evaluation	10 20 20 10
	Sub-Total Number of Credits per Semester			**60**
	2		**School attachment II**	**10**

	Sub-Total Number of Credits per Semester	**10**
TOTAL NUMBER OF CREDITS PER YEAR III		**70**
TOTAL NUMBER OF CREDITS PER ADVANCED DIPLOMA		**365**

2.5 Education modules

Module 1: Philosophical and Sociological Foundations of Education

Indicative content

This module introduces the philosophical and sociological basis of educational theory and their relation to teaching careers. It trains learners to reason with rigor, critically and carefully in examination of human thoughts and activities. It briefly highlights education development since the ancient times to the period of reformation and education in modern times, discussing on relevant system and Education Policies differences for comparison and for establishing the basis for justifying the current changes in Education.

Learning outcomes

By the end of this modules, students should be able to:

i) Explain sociology, philosophy and their implications and relevance to education.

ii) Criticize, analyze, interpret, assess and synthesize the sociological and philosophical basis of education.

iii) Reflect, justify and discuss the sociological and philosophical assumptions and their implication in educational policies and issues.

Module 2: Human Developmental Psychology

Indicative content

The module of Human Developmental Psychology equips students with deep knowledge and understanding of psychological human growth and development from conception to death through pregnancy, birth, infancy, childhood, adolescence, and old age. It explains the concept of developmental psychology, principles, determinants, and theories of human growth and development. The module describes with concrete examples the human physical, cognitive, socio-emotional, personality and moral development at different stages of lifespan. Furthermore, it helps students to draw educational implications that are appropriate for every stage of human development. The knowledge, skills, values, and attitudes will be utilized by the teacher to provide age-appropriate instruction to learners and to shape their behavior accordingly.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concept of human developmental psychology.

ii) Discuss the nature / nurture controversy in determining human growth and development.

iii) Discuss the principles of human growth and development.

iv) Analyze the physical, cognitive, socio-emotional, moral, and personality aspects of different stages of human development.

v) Draw educational implications of the physical, cognitive, socio-emotional, moral, and personality aspects throughout different stages of human development.

Module 3: Educational Psychology

Indicative content

The module of Education Psychology draws upon multiple perspectives to enable students to understand human functioning and behavior. It aims to equip students with knowledge and understanding of the link between psychology and the teaching and learning process. It focuses on the study of human learning. Specifically, the module deals with the meaning and significance of educational psychology, its scope and functions, nature and types of learning, theories of learning and their application in classroom settings, the role of motivation in learning, cognitive and behavioral perspectives to learning, approaches to teaching and learning, teacher personality and students' learning, self-regulation and self-concept and their role in learning, as well as classroom management.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the meaning, scope, and rationale of educational psychology.

ii) Establish a link between education and psychology.

iii) Analyze the contribution of psychology to teaching, learning, and assessment.

iv) Apply theories of learning in classroom contexts.

v) Apply motivation theories to teaching and learning.

vi) Analyze the role of teacher personality on students' learning.

vii) Evaluate different teaching and learning strategies for diverse learners.

viii) Evaluate the effect of learner self-regulation and self-concept on his/her learning.

ix) Effectively manage the class.

Module 4: Theories and Practice of Teaching and Learning

Indicative content

This module is designed to develop prospective teachers' knowledge, skills, values, and attitudes in the practice of teaching and learning. It provides learners with key pedagogical concepts, contemporary theories and modern practices of learning, general teaching methods, pedagogical documents including scheme of work and lesson plan and their use in competence-based education. Learners will acquire understanding of the techniques that can be used in different situations and will enable learners to develop skills on effective teaching practice, how to prepare and effectively deliver a competence-based curriculum lessons in Rwandan frameworks.

Learning outcomes

By the end of this module, students should be able to:

i. Explain the key pedagogical concepts.
ii. Discuss the learning theories
iii. Apply learning theories in the classroom
iv. Apply teaching methods in the classroom setting
v. Value the importance of pedagogical documents for learner's acquisition of the expected competences
vi. Design and effectively deliver lessons in competence-based curriculum using Rwandan frameworks.

Module 5: Teaching Practice

Indicative content

This module is designed to enable student teachers to get an overview of what happens in a school setting. The module will introduce students to the school environment. Through this module student will visit one of the schools surrounding their campus whereby the school leaders will help them to tour the school environment and one experienced teacher will share with them the benefits and challenges associated with the teaching profession. They will also have the opportunity to observe at least one lesson in their subject of specialization.

Learning outcomes

Having successfully completed this module, students should be able to:

i) Describe the environment in which the school operates;
ii) Display an awareness of benefits and challenges associated with the teaching profession;
iii) Use the teaching practice experience to reflect on what it means to be a professional teacher.

Module 6: Curriculum Theory and Development

Indicative content

This module is designed to develop learner's skills, knowledge and attitudes in the field of curriculum theory and development. It seeks to introduce learners with the concepts of curriculum, the importance of a curriculum, the theories and principles of curriculum design, factors that affect curriculum development, the steps and models of curriculum development, as well as the implementation and evaluation of a curriculum.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the concepts, principles, theories and models of curriculum development;

ii) Use models of curriculum development to understand the national and East Africa Curricula;

iii) Investigate the factors influencing national and regional curriculum development and the implementation process;

iv) Examine the curriculum implementation process;

v) Evaluate an implemented curriculum.

Module 7: Educational Technology

Indicative content

The module of Educational Technology focuses on how ICT can enhance learning. Students are introduced to concepts, learning theories vis-à-vis ICT integration in teaching and learning, and models of ICT. Students are exposed to UNESCO ICT Competency Framework for Teachers, ICT Essentials for teachers, Open Educational Resources. ICT-related pedagogies are explored as well as ICT enhanced assessment. The module enables the student teachers to gain ICT-based pedagogical competences that enable them to design an inclusive technology-enabled learning environment, to gain computer skills (typing, Microsoft word, PowerPoint, preparing instructional materials), use internet, social media (twitter, Facebook), use learning management platforms such as moodle. The module equips students with competences to design and implement learning activities, develop inclusive digital materials and resources, develop digital content, and produce their own google portfolio.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts, theories, and models of ICT.

ii) Apply and integrate ICT tools in teaching and learning.

iii) Design an inclusive technology-enabled learning environment.

iv) Use the internet, social media, e-learning platforms in designing and implementing learning activities.

v) Identify the barriers to effective communication in class and how to overcome them.

vi) Adopt and adapt the emerging technologies in teaching and learning activities.

vii) Produce their own google portfolio.

Module 8: School attachment

Indicative content

This module is designed to enable student teachers to job-shadow an experienced teachers preparing, delivering and assessing lessons in their subjects of specialization. They will also job-shadow other administrative staff in order to gain school life experience. To this end, this module will enable student teachers to be initiated by experienced professionals in real-life situations so as to get prepared for their student-teaching. Through this module, student teachers will also conduct trial lessons to complete experiences gained in microteaching sessions conducted in classrooms while studying modules related to teaching methods.

Learning outcomes

Having successfully completed this module, students should be able to:

i) Job-shadow experienced teachers in the school real life situation,

ii) Discuss the connection between trial lesson and micro teaching lessons;

iii) Collaborate with the school community to apply different theories,

iv) Appreciate the role of school attachment as a workplace learning experience,

v) Use the school attachment experience to reflect on what it means to be a professional teacher.

Module 9: Guidance, Counseling, and Inclusive Education

Indicative content

The guidance, counseling and Inclusive Education module is developed to introduce students to the concepts, aims, needs, scope, principles, theories and good practices that govern the process of guidance, counseling and inclusiveness in education. This module introduces the student also to the term such as disability, disorder, exceptionality handicap, categories of learners with disability, conducive environment for learners with disabilities; hearing impairments, visual impairment; speech and language disorder, autistic spectrum disorders; physical disabilities such as cerebral palsy; causes of disabilities, characteristics of learners with disabilities, myths associated with disability and national policies on special needs education.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Explain the concepts, scope, the necessity and theories leading guidance, counseling and inclusive education services.

ii) Apply appropriate guidance, counseling and inclusive education essential principles, rules and theories to solve problems;

iii) Provide a safe learning environment in school;

iv) Appraise the rights of learners with special needs education including guidance, counseling and safe learning environment.

v) Design process of helping individuals discover and develop their educational, vocations, and psychological potentialities and hereby to achieve an optimal level of personal happiness and social usefulness.

Module 10: Professional Ethics for Teachers

Indicative content

Professional Ethics for Teachers module is designed to motivate students to recognize the spectrum of societal responsibilities within the teaching profession. It offers the student a foundational knowledge of the field of professional ethics as it relates to educational practice. It fosters an awareness of education ethical dilemmas and provides students with the tools to create methods of resolution. It is intended to acquaint the students with the content of the

Code of Ethics for teachers, process of ethical decision making and hence to contribute to the overall professional development of the teacher. Students are exposed to a broad understanding of the ethical principles, concepts and issues that concern the practice of education. They are given an opportunity to examine the professional requirements as set out in the professional code of conduct for teachers/educationists. The aim is to develop an educationist who is professionally responsible and conscientious to moral and ethical concerns at work and in society. Students will also consider the laws and legal issues that are pertinent in the education sector. Issues pertaining to legal responsibilities and liabilities, professional ethical standards and general professional conduct in contemporary society will be considered. In particular, the students are exposed to the basic legal principles, concepts, procedures, institutions and issues related to education.

Learning outcomes

By the end of this module, students should be able to:

i) Identify ethical principles and values that guide professional conduct;

ii) Identify ethical and legal issues that may arise in a variety of educational contexts and practice;

iii) Appreciate the relevance of professional, ethical and legal principles and values in relation to their work;

iv) Manage the challenges involved in implementing the professional, ethical requirements and legal provisions in diverse educational environments; and

v) Demonstrate ethical and professional behavior in the workplace and society.

Module 11: Educational Measurement and Evaluation

Indicative content

The module of measurement and Evaluation is designed to develop students to basic concepts of measurement, test, and assessment in education as well as assessment theories and principles, types of evaluation, test construction and measurement in education. Furthermore, this module seeks to equip students with basic knowledge and skills that are relevant for assessing learner's proficiency level (skills, knowledge and attitudes) and developing learner's assessment tools or tests, the types of tests, characteristics of a good test and principles of testes construction, test contingencies, test scoring & interpretation of tests scores, benchmarks cut-scores methods and setting scores borderline methods as well as approach for administration and analysis of learners test results.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the basic concepts of measurement, test, assessment, score, borderline, theories and principles of measurement and evaluation in education.

ii) Differentiate assessment theories, types of evaluation, characteristics of good tests, principles of tests construction and cut-scores method to determine learner's categories borderline.

iii) Analyze and Interpret learners' tests results and determine learner's categories borderline.

iv) Design and administer learner's assessment tests items in relation to the subject specific undertaken for Bachelor of Education.

v) Analyze and communicate the results and other measures of learner characteristics.

Module 12: School attachment

Indicative content

This module is designed to enable student teachers to apply the theories acquired in the classroom into the school real life situation. The module will also help student-teachers to understand the teaching profession, its challenges and how they are addressed so as to get the school life experience. This module will cover content such as: concept of school attachment, roles and responsibilities of stakeholders in school attachment, lesson preparation, delivery and assessment, use of data and record keeping tracking students' progress, collaboration with parents and the wider community for improvement of students' learning outcomes.

Learning Outcomes

Having successfully completed this module, students should be able to:

i) Demonstrate an understanding of the role of school attachment in teacher education,

ii) Appreciate the role of school attachment as a workplace learning experience,

iii) Apply principles and theories acquired in classroom into the school real life context,

iv) Plan, deliver and assess a lesson in their area of specialization,

v) Use the school attachment experience to reflect what it means to be a teacher,

vi) Collaborate with different stakeholders to enhance students' learning achievement.

2.6 Subject-specific teaching methods modules

Module 1: Physics teaching methods

Indicative Content

This module underpins the theory and practice of teaching Physics and aims at training effective secondary school teachers of physics. It explores the current context of the competence-based curriculum with specific focus on Physics subject at secondary school level. Different themes include the Nature of Physics, Innovative instructional approaches of teaching physics, Resources in teaching Physics, Assessment in teaching physics and Microteaching. A particular emphasis will be put on the integration of new technologies in teaching Physics to enable the prospective physics teacher to organize, manage and run online physics lessons as well as virtual laboratories.

Learning outcomes

By the end of the module, students should be able to:

i) Critically analyze the current secondary school physics competence-based curriculum;
ii) Reflect on the current secondary school physics competence-based curriculum;
iii) Acquaint with all pedagogical documents relevant to teaching and learning physics
iv) Apply innovative instructional teaching methods such as inquiry-based teaching, project-based learning in physics teaching and learning practices;
v) Use appropriate technologies in teaching and learning physics;
vi) Apply assessment techniques for in teaching and learning physics;
vii) Plan, deliver and critique a physics micro-lesson;
viii) Familiarize with physics laboratory management;
ix) Integrate information technology in teaching and learning Physics.

Module 2: Mathematics Teaching Methods

Indicative content

An overview of mathematics; historical and philosophical basis of mathematics; nature of mathematics and its relation to teaching; teachers conception of mathematics instructional practice; goals and objectives of teaching mathematics in Rwanda; mathematics learning instructional theories; analysis of Mathematics competence-based curriculum (CBC) in Rwanda secondary schools; mathematics content and practices; algebra and geometry processes; measurement and probability; data analysis; Mathematical processes; problem solving in mathematics teaching; techniques of teaching problem solving; resources in teaching mathematics; schemes of work and lesson plan development, 5Es model of instruction; classroom observation and micro-teaching; assessment in mathematics teaching; issues in teaching and learning mathematics as well as integrating technology tools.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the nature and philosophy of mathematics education;
ii) Explore a guided range of principles, techniques, practices, standards and methods associated with teaching and learning mathematics;
iii) Explain the principles of mathematics competence-based curriculum (CBC) in Rwanda secondary school;
iv) Use effectively published research related to mathematics education for new teaching and learning styles;
v) Select and use of mathematics instructional material with respect to a given topic in the mathematics syllabus;
vi) Analyze different modes of assessing mathematics with respect to assembling instructional and student performance;
vii) Use of the information technology tools in teaching and learning mathematics;

Module 3: Computer Science Teaching Methods

Indicative content

The module aims to help students demonstrate flexible and interactive teaching styles in computer science by giving them the necessary knowledge and skills for computer science teaching methods. It focuses on the foundation of teaching computer science, the computer science curriculum of secondary schools in Rwanda, the 5Es instructional model, and aspects of computer teaching and learning, including interactive learning, questioning, Inquiry-based, Raising Questions, simulations, animations and videos, resources for teaching computer science, assessment of computer science teaching and learning at secondary schools, microteaching.

Learning Outcomes

By the end of this module, students should be able to:

i) Differentiate various teaching strategies and methods in computer science;
ii) Use different resources and practical activities to improve the teaching of computer science;
iii) Apply various teaching methods to improve the teaching and learning of computer science;
iv) Use a scheme of work, a lesson plan, evaluation of learning, and microteaching;
v) Develop lesson plans and assessment tools in computer science teaching;
vi) Use of the information technology tools in teaching and learning computer science;
vii) Take personal responsibility for decision making about appropriate teaching methods through microteaching.

Module 4: Didactique du français langue étrangère

Contenu indicatif

L'objectif général de ce module est de permettre à l'apprenant d'avoir des connaissances et des compétences, des attitudes et valeurs pour mettre en pratique le curriculum de français au Tronc Commun dans le cadre du CBC (competence-based curriculum) et du cycle supérieur du secondaire selon l'approche communicative et l'approche actionnelle. Il s'inscrit donc dans la perspective de l'enseignement/apprentissage du français langue étrangère, qui est la nouvelle option adoptée après la réforme de l'enseignement au Rwanda de 2009 faisant du français seulement une langue enseignée et nonplus une langue d'enseignement.

Les objectifs d'apprentissage

À la fin de ce module, les étudiants seront en mesure de démontrer leur connaissance et leur compréhension sur la didactique du français, notamment sur les points suivants:

i) Caractériser les différentes méthodologies d'apprentissage et enseignement du français à travers l'histoire;
ii) Expliquer l'importance de la langue française et de son enseignement au Rwanda;
iii) Expliquer les objectifs généraux de la classe de français;

iv) Décrire les pratiques et les techniques fondamentales d'apprentissage et enseignement du FLE selon le CBC.

v) Décrire l'organisation générale du contexte d'apprentissage;

vi) Décrire l'importance du stage pédagogique.

Imbumbanyigisho ya 5: Ubugeni bwihariye bwo kwigisha Ikinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho igamije gutegura abanyeshuri bazigisha Ikinyarwanda mu buryo bunoze mu mashuri yisumbuye. Kugira ngo ibi bigerweho, iyi mbumbanyigisho iha abanyeshuri ubumenyi, ubumenyingiro n'ubucyesha ku byerekeranye n'amateka, amahame, amahange n'ubugeni byo kwigisha Ikinyarwanda hakurikijwe integanyanyigisho ishingiye ku bushobozi. Iyi mbumbanyigisho isobanura mu buryo bwimbitse ibijyanye n'uburyo, ubuhanga n'ubugeni bukoreshwa mu kwigisha inshoza zitandukanye z'ururimi, ibidanago n'imfashanyigisho zikenerwa ndetse n'uburyo zikoreshwa, uburyo amasuzumabumenyi y'ururimi ategurwa akanakoreshwa, ndetse n'ibibazo bigaragara mu myigire, imyigishirize n'amasuzuma by'Ikinyarwanda. Ikindi, iyi mbumbanyigisho iha abanyeshuri ubumenyingiro ku byerekeranye n'integanyanyigisho, ndetse gutegura no gutanga amasomo y'Ikinyarwanda.

Intego z'imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, abanyeshuri bazaba bafite ubumenyi, ubumenyingiro n'ubucyesha mu bijyanye no kwigisha indimi muri rusange, ndetse no ku ngingo zikurikira by'umwihariko:

i) Amateka, intego n'akamaro ko kwigisha Ikinyarwanda mu Rwanda, mu karere ndetse no ku isi hose,

ii) Amahange akoreshwa mu kwiga no kwigisha ururimi nk'ururimi kavukire, ururimi rwa kabiri, n'ururimi rw'amahanga, ndetse n'uburyo ayo mahange ahuzwa no kwiga no kwigisha Ikinyarwanda,

iii) Akamaro n'uburyo byo gukoresha ikoranabuhanga mu myigire n'imyigishirize by'Ikinyarwanda,

iv) Amahame, uburyo, n'ubugeni bwihariye bwo kwigisha Ikinyarwanda, no gutegura ibidanago bikoreshwa mu kwigisha hagendewe ku nteganyanyigisho ishingiye ku bushobozi,

v) Imfashanyigisho n'ibindi byose bikenerwa mu kwigisha no gutanga amasuzumabumenyi ku banyeshuri biga ururimi rw'Ikinyarwanda,

vi) Amahange y'iyigandimi n'ayo mu burezi akoreshwa mu mitegurire, imitunganyirize, n'imisuzumire y'imyigire n'imyigishirize by'Ikinyarwanda.

Module 6: Biology Teaching Methods

Indicative content

This module aims to equip students with knowledge, skills, attitudes, and values to enable them to implement the Biology Competence Based Curriculum (CBC) at secondary school level. The module covers the history and nature of science, philosophical foundations of

teaching and learning science, biology CBC and its implementation in Rwanda, methods for CBC implementation in biology, key concepts and aspects (Questioning, Raising Questions, discrepant event, practical work, concept cartoons, contextualization of learning, use of simulations, animations and videos) in biology teaching and learning, 5Es instructional model in biology lesson planning and delivery, resources for effective learning and teaching biology, designing assessment tools and planning for biology teaching and learning. It also exposes prospective teachers with skills for teaching through micro-teaching and micro-feedback.

Learning outcomes

By the end of this module, student should be able to:

i) Critically analyze the current secondary school biology competence-based curriculum;
ii) Reflect on the current secondary school biology competence-based curriculum;
iii) Explain the history and the nature of science biology included;
iv) Discuss the philosophical foundations of teaching and learning science biology included;
v) Apply various teaching and learning concepts, principles, methods and aspects/techniques for biology teaching and learning;
vi) Use appropriate biology teaching and learning resources;
vii) Plan 5Es instructional model lessons and apply them in microteaching sessions;
viii) Develop lesson plans and assessment tools in biology teaching and learning;
ix) Practice teaching through micro-teaching and micro-learning and provide feedback.
x) Use of the information technology tools in teaching and learning;

Module 7: English Language Teaching Methods

Indicative *content*

The module aims to help students gain knowledge on modern language teaching methods and techniques and how they can be applied while teaching English as a foreign language. It focuses on some essential IT tools used for teaching English, the use of audio-visual tools to teach English as well as the teaching of English grammar in context.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the methodologies and strategies for teaching English as a foreign language
ii) Use modern language teaching methods
iii) Use technology to develop learners' proficiency in English as a foreign language
iv) Articulate the methods and identify the materials to use in order to teach English as a foreign language
v) Simulate an English language teaching session using appropriate teaching methods
vi) Respond to the affective and cognitive needs of diverse learners of English

vii) Independently design English lesson plans and related teaching materials.

Module 8: History Teaching Methods

Indicative content

The module aims at equipping student teachers with competences to teach history in secondary schools. It introduces the students to essential qualities of an ideal history teacher. It also aims at familiarizing student-teachers with different theories of teaching and learning history, history curriculum and textbooks, use of history sources as a teaching resource, teaching sensitive and controversial topics, teaching large and disadvantaged classrooms and use of ICT in teaching history. The module details history lesson planning, preparation, delivery and assessment. Finally, microteaching aims at equipping the student teachers with teaching skills.

Learning outcomes

By the end of this module, students should be able to:

i) Critically analyze the current secondary school history competence-based curriculum;

ii) Reflect on the current secondary school history competence-based curriculum;

iii) Diagnose the strength and weaknesses of different sources to teach history;

iv) Discuss the opportunities and challenges of history curriculum in the context of a competence-based curriculum;

v) Plan, deliver and assess history lessons in a creative manner;

vi) Use data to provide constructive feedback to students;

vii) Use of educational technologies including ICT in teaching and learning history.

Module 9: Geography Teaching Methods

Indicative content

The module aims to equip student-teachers with knowledge, skills and values to teach geography in secondary schools. This refers to familiarizing a Geography student-teacher with the school and classroom real life experiences and the whole process of teaching and learning before taking on the full range of responsibilities of the professional teacher. The module presents the qualities of a Geography teacher, recalls the strategies of class motivation and management, introduces students to appropriate and specific teaching methods and techniques of Geography and their challenges, and finally details the ways of geography lesson planning, preparation, delivery, and assessment.

Learning outcomes

By the end of this module, students should be able to demonstrate ability to:

i) Critically analyze the current secondary school geography competence-based curriculum;

ii) Reflect on the current secondary school geography competence-based curriculum;

iii) Prepare geography lessons that fit with learners' levels;
iv) Identify appropriate methods and teaching aids to teach geography;
v) Apply effective strategies of class management and motivation;
vi) Apply appropriate teaching and learning methods to deliver a lesson in geography;
vii) Apply properly crosscutting issues in teaching geography;
viii) Elaborate a scheme of work and prepare a lesson in a competence-based approach;
ix) Use of educational technologies including ICT in teaching and learning process;

Module 10: Economics Specific Teaching Methods

Indicative content

This module aims at allowing students to teach effectively and efficiently Economics at secondary school level; to provide students with a comprehensive, critical overview of the historical, theoretical and practical dimensions of Economics teaching. It presents concepts and approaches in a learner-centered pedagogical orientation, of appropriate methodologies in teaching Economics. The course will equip students with basic knowledge of economics education. The course spreads through areas like economics education in secondary school, scope of economics education, methods, and techniques of teaching economics. It will discuss the following items: Economics Education in Rwanda Secondary School, Planning the course, Evaluation strategies in economics, Qualities of a good and effective economics teaching and classroom management, Preparation of economics syllabus and pitfalls of syllabus construction, analyzes the different techniques and methods of teaching economics, the teaching aids in economics, the classroom for economics and the teacher of economics.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concept of economics and economics education;
ii) Discuss the Historical and philosophical bases of Economics teaching;
iii) Discuss the practical and theoretical problems facing the teaching of economics;
iv) Explain the approaches to the preparation of economics syllabus and enumerate the pitfalls of syllabus construction;
v) Present orally or in writing principles of teaching Economics to any audience;
vi) Describe the evolutions of teaching methods for economics;
vii) Apply appropriate theories in planning, organizing, and assessing economics teaching-learning process;
viii) Use of the information technology tools as teaching and learning materials;

Module 11: Chemistry Teaching Methods

Indicative content

This module aims at equipping students with knowledge, skills, attitudes, and values to enable them to implement the chemistry competence-based curriculum (CBC) at secondary school level. The module covers the nature of science; development of chemistry concepts and procedures; basic principles and theories of teaching chemistry. It provides details on technological, pedagogical, and content knowledge (TPACK) and seeks to offer deep understanding of chemistry CBC and its implementation in Rwanda. The methodology and key aspects of chemistry teaching and learning are also developed. Furthermore, the module highlights resources for learning and teaching chemistry as well as planning for chemistry teaching and assessment. Lastly it emphasizes micro-teaching activities and practicum.

Learning outcomes

By the end of this module, students should be able to:

i) Explain theories of teaching and learning science;
ii) Explain the general purpose of teaching chemistry in secondary school;
iii) Identify and use appropriate chemistry teaching resources;
iv) Apply appropriate approaches and methods for teaching chemistry;
v) Plan a micro-lesson and a real lesson in secondary schools;
vi) Teach a micro-lesson and a real lesson in secondary school;
vii) Analyze lesson plan models;
viii) Develop own teaching resources to conduct chemistry experiments;
ix) Use of the information technology tools as teaching and learning materials;

Module 12: Entrepreneurship Specific Teaching Methods

Indicative content

This module aims at providing students with an understanding of concepts and theories to teach effectively and efficiently Entrepreneurship at secondary school. It will provide students with a comprehensive practical dimensions of teaching Entrepreneurship including the whole process from lesson preparation, micro-teaching, delivery and evaluation,

It will focus on the rationale for the teaching and learning of Entrepreneurship, concepts, and theories in teaching Entrepreneurship; Entrepreneurship competency-based curriculum, various methods, techniques and teaching resources used in teaching Entrepreneurship. Elaboration of scheme of work, lesson plan as well as assessment and microteaching

Learning outcomes

By the end of the module, students should be able to:

i) Explain principles of entrepreneurship competence-based curriculum;
ii) Apply entrepreneurship teaching methods and strategies through micro-teaching practices;

iii) Apply appropriate theories in planning, organizing, and assessing Entrepreneurship teaching and learning activities;

iv) Develop teaching materials to make learning more interesting and memorable for learners;

v) Use teaching materials to make learning more interesting and memorable for learners

vi) Make independent decisions for selecting appropriate methods, techniques, and materials for teaching entrepreneurship

vii) Use of the information technology tools as teaching and learning materials

viii) Create awareness on self-employment as a career option;

Moduli 13: Mbinu za Ufundishaji wa Kiswahili

Ufafanuzi

Moduli hii inakusudiwa kuwawezesha wanafunzi kufundisha Kiswahili kwa ukamilifu katika shule za sekondari. Aidha, inawapatia wanafunzi mtazamo wa kina na wa kihakiki kuhusu mielekeo ya ufundishaji wa lugha kwa ujumla kihistoria, kinadharia na kivitendo. Hivyo, moduli hii inawasilisha dhana na mikabala ya mbinu mbalimbali mwafaka za ufundishaji wa Kiswahili katika mwelekeo wa kumfanya mwanafunzi kuwa kitovu cha ufundishaji na ujifunzaji.

Matokeo ya ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua mbinu mbalimbali ufundishaji na ujifunzaji wa lugha ya pili;

ii) Kujadili dhana muhimu katika ufundishaji wa lugha ya Kiswahili: andalio la somo, pango kazi, nadharia za ujifunzaji, mkabala, mbinu, shajara ya darasa;

iii) Kutathimini mbinu mbalimbali za ufundishaji lugha ya pili kwa ujumla na Kiswahili kwa umahsusi;

iv) Tathimini ya ufundishaji wa lugha ya Kiswahili katika mtaala unaoegemea katika uwezo;

v) Kuandaa masomo tofauti muafaka ya ufundishaji wa stadi nne za lugha;

vi) Kutumia nadharia, mikabala na mbinu za ufundishaji lugha ya Kiswahili kwa namna muafaka;

vii) Kuandaa kwa ufasaha somo la lugha na fasihi na tathimini yake;

viii) Kuandaa mpango kazi na andalio la somo kwa ufasaha.

ix) Matumizi ya zana za teknolojia ya habari kama nyenzo za kufundishia na kujifunzia.

Module 14: Teaching Methods in Early Childhood Development

Indicative content

This module aims at equipping student teachers with knowledge, skills, attitudes, and values that enable them to teach effectively early childhood learners. The module focuses on the

following topics: Theories underpinning early childhood learning, methods and approaches of teaching and learning pre-school learners; Integrated thematic approach to teaching and learning in ECD; Field trip to observe live lessons in some of the best pre-primary schools; Microteaching.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the theories underpinning early childhood learning;

ii) Apply appropriate approaches and methods in teaching early childhood learners;

iii) Deliver effectively early childhood instruction in integrated thematic approach;

iv) Report orally and / or in writing on the lesson observation conducted in one of the best pre-schools and micro-teaching session;

v) Conduct a micro-teaching lesson;

vi) Use of the information technology tools as teaching and learning materials.

2.7 Subject modules

2.7.1 Physics modules

Brief description and aims

This programme aims at training secondary school physics teachers. It is a three-year programme designed to produce qualified physics teachers whose responsibilities include but are not limited to preparing and delivering lessons, identifying and analyzing students' needs, strengths and weaknesses, and assessing students' learning. The programme puts emphasis on laboratories.

Learning outcomes

By the end of this programme, students should be able to:

i) Analyze the physics secondary school curriculum;

ii) Establish the link between the content of physics modules and the secondary school physics curriculum;

iii) Explain the theoretical and practical knowledge of physics as well as pedagogical content knowledge;

iv) Develop syllabi, lesson plans, and educational content in relation to physics curriculum;

v) Organize and manage physics laboratories and perform physics experiments.

Table 20: **Distribution of Physics Modules**

S/N	Modules	Year of study	Semester	Credits
1	Introductory Mechanics	1	1	15
2	Experimental Physics Lab 1	1	1	10
3	Properties of Matter and Thermodynamics	1	2	10
4	Waves and Optics	1	2	15
5	Modern Physics and Special Relativity	2	1	15
6	Introduction to Electromagnetism	2	1	15
7	Introduction to Electronics	2	2	10
8	Experimental Physics Lab 2	2	2	10
9	Quantum Physics	3	1	10
10	Environmental and Space Physics	3	1	10
Total Credits				**120**

Module 1: Introductory Mechanics

Indicative content

The module of introductory mechanics introduces students to mathematical techniques used in understanding the behavior of dynamical systems that obey Newton's Laws. It includes topics on vector analysis, physical quantities and measurement, kinematics and dynamics of a particle, dynamics of translation and rotation of a rigid body and conservation laws.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the basic units on measurements for mass, length, time, temperature;

ii) Distinguish between scalar and vector quantities;

iii) Perform calculations to determine distance, velocity and acceleration in one dimension;

iv) Derive and apply the equations for an object traveling along a parabolic path;

v) Apply Newton’s Laws of motion to motion in one –dimension;

vi) Describe the dynamics of circular motion;

vii) Describe the principle of conservation of linear momentum and its application to collisions;

viii) Perform and interpret the results of simple experiments and demonstrations of physical principles.

Module 2: Experimental Physics Lab 1

Indicative content

The purpose of this module is to ensure that physics students have basic laboratory and data analysis skills to equip them for subsequent physics teaching. This module, through a series of experiments, seeks to allow student-teachers to become familiar with some more complex apparatus and give them the opportunity to learn the art of accurate recording and analysis of data, dealing with error analysis, using instrumentation, constructing simple experiments, writing laboratory reports, group project work and oral presentation. Furthermore, the module familiarizes student teachers with the use of appropriate Computer and Information technologies (C&IT) packages/systems for the analysis of data and the retrieval of appropriate information.

Learning outcomes

By the end of the module, students should be able to:

i) Carry out basic experimental measurements with a Vernier Calipers, Micrometer Screw Gauge, electronic multimeter, and other measurement devices;

ii) Apply appropriate safe laboratory practices;

iii) Execute and analyze critically the results of an experiment or investigation and draw valid conclusions;

iv) Plot, and present graphs both manually and using excel;

v) Analyze and interpret information graphically;

vi) Identify sources of error in an experiment and estimate the associated uncertainty in measuring physical quantities;

vii) Produce a written report and deliver a PowerPoint presentation on the project work.

Module 3: Properties of Matter and Thermodynamics

Indicative content

This module will introduce students to properties of matter (Temperature, Pressure, Enthalpy, Specific Volume, Entropy, etc.) and governing laws which can be used to describe the behavior of matter and its interaction with the surrounding environment.

Learning outcomes

By the end of the module, students should be able to:

i) Describe properties and processes used in thermodynamic analysis and the governing laws;

ii) Describe the behavior of thermodynamics processes and heat transfer;

iii) Apply laws of kinetic theory of ideal to solving practical problems;

iv) Apply laws of kinetic theory and thermodynamics to solving practical problems.

Module 4: Waves and Optics

Indicative content

This module aims at enhancing students' knowledge in the areas of waves and geometrical optics. The module covers the characteristic parameters of a forced, damped harmonic oscillator, and relates them to the characteristic parameters of wave propagation. It also discusses the propagation and reflection of waves, using waves on a stretched string as the model system. Longitudinal waves in solids, sound waves in gasses are also discussed, followed by an introduction to geometrical optics, optical systems and physical optics.

Learning outcomes

By the end of the module, students should be able to:

i) Describe the wave motion and derive the wave equation;

ii) Analyze the propagation of elastic waves in a solid rod and in a spring and solve related exercises/ problems;

iii) Derive the laws of reflection and refraction, diffraction and interference of light waves using the Huygens' and Fermat's principles;

iv) Use the Principle of Superposition for Waves to explain the phenomena of interference of waves, standing waves and resonance;

v) Explain the Classical Doppler effects and solve related exercises/ problems;

vi) Analyze the formation of images in spherical mirrors, thin – lenses and optical instruments and solve related exercises/problems;

vii) Interpret the principle of diffraction, determine diffraction patterns, resolving-power, and spectrums by diffraction gratings

Module 5: Modern Physics and Special Relativity

Indicative content

This module introduces students to the elementary concepts of quantum mechanics, nuclear physics, and crystal structure. It further develops the theory and conceptual understanding of special relativity, inertial reference frames, time dilation, length contraction, paradoxes, principle of equivalence; basic quantum mechanics, wave-particle duality and space-time from first principle, using four-vector and tensor notations, providing applications of the theory from the dynamics of point particles through electrodynamic phenomena as viewed from different inertial frame of reference.

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the postulates in Einstein theory of special relativity and their implications including proper time and proper velocity;

ii) Explain concepts relating to the consequences of special relativity, the nature of space-time and related observables;

iii) Explain the basic concepts of quantum theory (thermal radiation and Planck's postulate, particle like properties of radiation, wavelike properties of particles, models of atom);

iv) Interpret the concept of Schrodinger's theory of quantum mechanics;

v) Analyze and solve kinematics problems using postulates in Einstein theory of special relativity;

vi) Analyze and solve wave-particle duality problem;

vii) Analyze and solve time-independent Schrodinger equation.

Module 6: Introduction to Electromagnetism

Indicative content

This module introduces students to the basic concepts underpinning electricity and magnetism such as potential and field. It further helps student teachers to understand the relationship between electric and magnetic fields and to calculate the electrostatic and magnetic fields produced by static and moving charges in a variety of simple configurations. The module gives an introduction in electromagnetism with emphasis on the following topics: Electric fields and currents, magnetic fields and induction, simple electrical circuits, Maxwell's equations.

Learning outcomes

By the end of the module, students should be able to:

i) Explain the basic concepts underpinning electricity and magnetism such as potential and field;

ii) Explain the key topics within the theory of electromagnetism, electric fields and currents, magnetic fields and induction, simple electrical circuits, Maxwell's equations and electromagnetic waves, electromagnetic phenomena;

iii) Explain basic physical laws and concepts in electricity and electromagnetism;

iv) Use fundamental laws and relations to solve problems in electricity, electromagnetism and draw sketches illustrating the physics in the problems solved;

v) Calculate the electrostatic and magnetic fields produced by static and moving charges in a variety of simple configurations;

vi) Compute the basic electromagnetic parameters.

Module 7: Introduction to Electronics

Indicative content

The module introduces students to the basic knowledge required to understand, design, work, analyze and build several circuits, which will be of use later. It covers topics such as semiconductors and rectification, bipolar junction transistor, metal-oxide semiconductor transistors (MOST), amplifier and feedback amplifier, operational amplifier, logic

fundamentals, digital and analogue signals, block diagram of telecommunication system. The module also helps students to familiarize with standard lab electronics and some common circuit elements such as linear and nonlinear, passive and active as well as understand fundamental electronics concepts, including current/voltage dividers, impedance & load frequency response & transfer functions.

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the common electronic components and their functions; some basic concepts of semiconductor physics;

ii) Draw and explain diode and transistor circuits and their applications;

iii) Explain the working principle of various amplifiers;

iv) Distinguish the working principle of devices using digital and analog signals;

v) Explain the characteristics, operation and applications of the diodes, bipolar junction transistors, field effect transistors, SCRs and operational amplifiers in electronic circuits;

vi) Manipulate different number systems and work on fundamental building blocks of digital circuits.

Module 8: Experimental Physics Laboratory 2

Indicative content

The module provides students with a wide range of experience in physics experiments related to secondary school physics curricula and enhance their ability and familiarity with related equipment and techniques. To complement and reinforce the theory covered in the classroom, the module reinforces synergy of classroom and laboratory teaching in science education by emphasizing the areas including, but not limited to good laboratory practice, keeping a laboratory notebook, data analysis and presentation; report writing, and laboratory safety. In addition, ICT will be given particular attention to enable students to integrate Virtual Laboratory using ICT for physics.

Learning outcomes

By the end of the module, students should be able to:

i) Describe laboratory apparatus and techniques, including aspects of Health & Safety;

ii) Analyze critically the results of an experiment or investigation and draw valid conclusions;

iii) Evaluate the level of uncertainty in these results;

iv) Compare the results with expected outcomes;

v) Use appropriate ICT packages or software and other e-resources including virtual experiments;

vi) Interpret information graphically;

vii) Communicate scientific information to produce clear and accurate scientific reports;

viii) Manage a secondary school physics laboratory.

Module 9: Quantum Physics

Indicative content

This module discusses the principles of quantum mechanics, Schrödinger's equation and operator formulation of quantum mechanics, quantum Poisson's brackets, derivatives of operators with respect to time, equations of motion in quantum mechanics and laws of conservation.

Learning outcomes

By the end of the module, students should be able to:

i) Describe the main features of the historical development of quantum physics;

ii) Discuss the key concepts and principles of quantum physics;

iii) Explain the physical states of elementary particles and atoms in different systems based on quantum mechanics;

iv) Solve the Schrödinger equation for standard systems with both analytical and numerical methods, and then interpret the results;

v) Describe inadequacy of the laws of classical physics to explain atomic phenomena and explain the need to develop a new theory;

vi) Apply the principles of Quantum Mechanics to solve problems.

Module 10: Environment and Space Physics

Indicative content

This module introduces students to the basic concepts of environmental physics with the focus on atmospheric radiation, greenhouse gasses, pollution, climate change, and energy. It also provides students with the basic concepts and principles of space physics and astrophysics. It includes fundamental principles of space and climate science physics, laws that govern formation, structure, evolution and emission of stars and galaxies.

Learning outcomes

By the end of the module, students should be able to:

i) Analyze environmental problems;

ii) Relate energy production and energy consumption to climate change;

iii) Explain climate-change mitigation and alternative energy;

iv) Describe the evolution of universe and its related theories;

v) Describe the basic functionalities of the optical/UV/IR telescope;

vi) Discuss teaching and learning strategies for Environmental and Space Physics.

2.7.2 Mathematics modules

Brief description and aims

The advanced diploma in education with mathematics subject aims to improve teachers' subject content knowledge that will enable student teachers to develop a wide variety of skills and techniques for teaching algebra, calculus and geometry as well as statistics and probability. Student-teachers will demonstrate that the goal of learning mathematics is not to score higher exam marks but more importantly to become responsible people with well-developed minds and skills through scientific-based decision taking.

Learning outcomes

By the end of this program students should be able to:

i) Explain mathematical concepts and their applications;

ii) Describe the scope of Mathematics;

iii) Communicate various concepts of mathematics effectively using examples and their physical/geometrical visualizations;

iv) Develop a wide variety of skills and techniques in various domains of mathematics;

v) Model real world problems mathematically and interpret the results appropriately;

vi) Use appropriate software and technological tools and judge when such use is helpful);

vii) Apply a defined range of principles, techniques, practices, standards and methods associated with Mathematics.

Table 21: Distribution of Mathematics modules

S/N	Module	Year	Semester	Credit unit
1	Fundamentals of Algebra	1	1	10
2	Geometry	1	1	15
3	Fundamentals of Calculus	1	2	15
4	Descriptive Statistics and Probability	1	2	10
5	Real Analysis	2	1	10
6	Linear Algebra	2	1	10
7	Algebraic Structures	2	1	10
8	Ordinary Differential Equations	2	2	10
9	Multivariable Functions	2	2	10
10	Complex Analysis	3	1	10
11	Partial Differential Equations	3	1	10

Total credit:	**120**

Module 1: Fundamentals of Algebra

Indicative content

This module aims at equipping students with knowledge and skills of Fundamentals of Algebra. It focuses on set and set operations, number systems, set of numbers (integers, real, complex), group and ring structures, divisibility, congruence, Diophantine equations.

Learning outcomes

By the end of this module students should be able:

i) Explain the concept of set;

ii) Recognize fundamental algebraic structures including group and ring;

iii) Solve Diophantine equations;

iv) Apply mathematics reasoning in making decisions.

Module 2: Geometry

Indicative content

This module aims at equipping students with knowledge and skills of Geometry. It emphasizes on the notions of coordinates; vectors; scalar product; dot product; cross product; box product; notion of length, norms, area and volumes; plan analytical geometry: point, straight line, circle and conics; solids or 3D: point, straight line, plan, and surfaces. Shapes: triangle, quadrilaterals, polygons and circles; Solids: cubes, parallelepipeds, pyramids, prism, tetrahedrons; cones, cylinders, computation of length, area, and volume using calculus and linear algebra; Computation of angles using trigonometry; Manipulation of shapes and solids using local materials applied to everyday life (architecture and arts).

Learning outcomes

By the end of the learning experience, students should be able to:

i) Explain various 2D and 3D shapes;

ii) Establish equations of lines and planes in 2D and 3D;

iii) Use scalar product to determine vector product to determine length, angle, area and volume;

iv) Use local material to physically represent various 2D and 3D shapes;

v) Use appropriate software and technological tools to represent 2D and 3D shapes.

Module 3: Fundamentals of Calculus

Indicative Content

This module aims at equipping students with knowledge and skills of Fundamentals of calculus. It provides details on number line (inequalities), Principles of problem solving referring to George Polya, relation, functions and their representations, numerical sequences and series, polynomial, trigonometric, exponential, and logarithmic functions.

Learning outcomes

By the end of the learning experience, students should be able to:

i) Explain the concept of calculus;

ii) Apply George Polya algorithm to solve various problems notably those involving series and sequences;

iii) Examine the convergence of numerical series or sequences;

iv) Solve real life problems involving exponential and logarithmic equations.

Module 4: Descriptive Statistics and Probability

Indicative content

This module aims at equipping students with knowledge and skills of descriptive statistics and probability. It encompasses descriptive statistics: frequency distributions and their graphs; measures of central tendency, simple correlation; and probability: basic concepts of probability and counting; conditional probability and multiplication rule; the addition rules.

Learning outcomes

By the end of this module students should be able to:

i) Explain descriptive statistics and probability;

ii) Compute statistical parameters such a mean, variance and standard deviation;

iii) Interpret statistical parameters such a mean, variance and standard deviation;

iv) Compute simple and conditional probability of events;

v) Apply descriptive statistics in organizing raw data;

vi) Use appropriate software and technological tools for data presentation and analysis.

Module 5: Real Analysis

Indicative Content

This module aims at equipping students with knowledge and skills of real analysis. It focuses on the domain and range of numerical function, limit and continuity, differentiation and applications, integrals and applications, and numerical integration.

Learning outcomes

By the end of the learning experience, students should be able to:

i) Explian the concept of limit and continuity;

ii) Explain the principles of differentiation and integration;

iii) Differentiate various functions in one real variable;

iv) Integrate various functions in one real variable;

v) Apply numerical differentiation and integration in solving some problems encountered in other sciences;

vi) Analyze scientific problems to establish appropriate mathematical models.

Module 6: Linear Algebra

Indicative content

This module aims at equipping students with knowledge and skills of linear algebra. It covers the introduction to vector space and linear transformations, applications of linear algebra including vector and matrix algebra, vector representation of lines and planes, projections, Gaussian elimination, eigenvectors.

Learning outcomes

By the end of the learning this module, students should be able to:

i) Explain vector spaces and linear transformations;

ii) Compute matrix determinants in solving linear equation systems;

iii) Apply matrix determinants in solving linear equation systems;

iv) Solve real-world problems encountered in computational engineering and science;

v) Use Gaussian elimination to solve linear systems.

Module 7: Algebraic Structures

Indicative content

This module aims at equipping students with knowledge and skills related to algebraic structures. It focuses on fundamental algebraic structures that are useful to describe symmetries, such as groups. Properties of such structures will be derived from the relevant axioms. Well-known algebraic systems such as permutation groups, cyclic groups, symmetric and alternating groups.

Learning outcomes

By the end of this module, students should be able to:

i) Explain group structure;

ii) Discuss permutation group and its subgroups in relation with their geometrical representations;

iii) Apply algebraic structures in solving daily life problems

Module 8: Ordinary Differential Equations

Indicative content

This module aims at equipping students with knowledge and skills related to ordinary differential equations. It covers separable and first-order linear equations, examples of differential equations in different areas of science and finance, solve particular instances of second order differential equations, power series and numerical solutions, linear systems and classification of critical points.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the concepts of ordinary differential equations (ODEs);

ii) Solve first and second order ODEs;

iii) Apply ODEs in solving real life world problems.

Module 9: Multivariable Functions

Indicative content

This module aims at equipping students with knowledge and skills of multivariable functions. It covers concepts of multivariable functions of several variables, limits and continuity, partial derivatives, double integrals, application of double integrals to determine surface area and solid volume

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the functions of many variables, partial derivatives, total differentiation, directional derivative and gradient;

ii) Find out critical points for and extrema of a given function using first and second derivative test;

iii) Differentiate a multivariable function;

iv) Integrate a multivariable function;

v) Apply the acquired concepts and methods to solve various related problems be it in mathematics or in any other domain.

Module 10: Complex Analysis

Indicative Content

This module introduces students to concepts of complex analysis. It covers geometry in the complex plane, limits and continuity, holomorphic functions, line integrals, Cauchy's theorem

and some elementary sequences, singularities and Laurent's theorem, the calculus of residues and some applications.

Learning outcomes

By the end of this module, students should be able to:

i) Explain complex sequence and series and residue theorem;
ii) Explain basic properties of holomorphic functions;
iii) Develop a complex function into Taylor and Laurent series;
iv) Analyze convergence of complex sequences and power series;
v) Apply Cauchy's theorem in computing complex integrals.

Module 11: Partial Differential Equations

Indicative content

This module introduces students to concepts of partial differential equations. It focuses on concepts of partial differential equations, classification of send order PDE, application of PDE to solve a wide variety of problems from various domains (physical, chemistry, biological, economical, etc.) notably waves and heat equations.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the concepts of partial differential equations (PDE);
ii) Solve first and second order partial differential equations;
iii) Solve waves, Schrodinger and Heat equations;
iv) Apply PDEs in solving world problems commonly encountered in other sciences.

2.7.3. Chemistry modules

Brief description and aims

The advanced diploma of Education in chemistry aims to provide individuals with the necessary knowledge, skills, and practical experience to become proficient and effective chemistry educators. This program is designed to build upon the foundational understanding of chemistry and develop specialized expertise in teaching methods and strategies for the subject. Students are trained and become familiar with the scope, methodology, and application of chemistry in real life. They also acquire the foundational knowledge and competencies needed to pursue a career or degree in the field of education. By pursuing an advanced diploma of Education in chemistry, individuals aim to become skilled and knowledgeable chemistry educators who can inspire and guide students in their learning journey, foster a love for the subject, and prepare them for future academic and career opportunities in the field of chemistry.

Learning outcomes

By the end of this program, students should be able to:

i) Explain fundamentals and applications of chemical theories;
ii) Design and carry out chemistry experiments and accurately analyze their results;
iii) Recognize the role of chemistry in our society, and environmental issues facing the society;
iv) Explore different areas of research in chemistry;
v) Solve societal problems using chemistry knowledge;
vi) Explain the relevancy and need of chemistry in addressing social, economic, and environmental problems;
vii) Plan and teach chemistry lessons at secondary school

Table 22: Distribution of Chemistry modules

S/N	Module	Year of study	Semester	Credits
1	General Chemistry	1	1	15
2	Introduction to Laboratory Techniques	1	1	10
3	Inorganic Chemistry	1	2	10
4	Physical Chemistry I	1	2	15
5	Organic Chemistry	2	1	15
6	Electrochemistry and Analytical Chemistry	2	1	15
7	Transition Metal Chemistry	2	2	10
8	Biochemistry	2	2	10
9	Physical Chemistry II	3	1	10
10	Industrial and Environmental Chemistry	3	1	10
Total credits				**120**

Module 1: General Chemistry

Indicative content

The module aims at equipping students with competences in general chemistry and its applications in the physical world. It provides details on laboratory safety, apparatus and equipment, dimensional analysis referring to quantities and units used in chemistry. It also deals with matter and states of matter as well as electronic structure of atoms and the shapes of atomic orbitals (s, p, d and f) using building principle. Furthermore, it focuses on the effect of electronic structure on periodicity of the elements in the periodic table and chemical bonds.

The module also provides knowledge on chemical and nuclear reactions as well as radioactivity. The practical sessions are concerned with reactions involving heating, drying, determination of specific heat, calcination, weighing and measuring volumes of chemical substances.

Learning outcomes

By the end of this module, students should be able to:

i) Explain security and safety rules in chemistry laboratory;
ii) Interpret the properties of elements from the periodic table;
iii) Explain atomic structure and concept of chemical bonding;
iv) Draw Lewis dot and line structures to represent chemical bonds;
v) Prepare common compounds and elucidate their properties;
vi) Calculate activity, decay rate, decay constant, half-life, and binding energy;
vii) Predict nuclear stability of atoms;

Module 2: Introduction to Laboratory Techniques

Indicative content

This module provides students with practical skills recommended for using the various apparatus and equipment in chemistry laboratories. It explains first aid kit, laboratory safety signs, incident management, ways of measuring volume using different apparatus such as measuring cylinders, dispensing pumps, graduated pipette, Pasteur pipette, syringes and micropipettes. The module also focuses on measuring weight using analytical balances, methods of Heating using different apparatus including but not limited to heating mantles, hotplates, water baths, oil baths, sand baths, flames, and steam baths. It also deals with cooling using cold baths, setting up equipment for common reactions as well as various methods of filtration such as gravity filtration, filter paper, vacuum filtration, filter tip pipet and centrifugation.

Learning outcomes

By the end of this module, students should be able to:

i) Measure volume and weigh using various measuring laboratory equipment;
ii) Heat and cool substances at desired temperature using different lab apparatus;
iii) Set up apparatus for carrying out common chemical reactions;
iv) Filtrate using various method such as gravity filtration, filter paper, vacuum filtration, filter tip pipet and centrifugation;
v) Carry out crystallization to purify solid substances;
vi) Measure physical constant such as melting point, boiling point and densities using appropriate laboratory apparatus;
vii) Set up apparatus for simple and fractional distillation experiments and produce a scientific report.

Module 3: Inorganic Chemistry

Indicative content

This module equips students with knowledge and practical skills to treat and use inorganic compounds to solve daily problems. The module deals with historical development of the periodic table, trends of properties in the periodic table (Ionization energy, electron affinity electronegativity, atomic and radii, reducing and oxidizing power, metallic/non-metallic characters, boiling and melting points). The module also emphasizes on acid/base characters and descriptive chemistry of representative elements as well as dangers associated with metal extraction and prevention measures. Furthermore, it also deals with organometallic compounds of the main group elements and molecular symmetry.

The practical sessions will be centered on identification and preparation of inorganic compounds and determination of the oxygen content of air.

Learning outcomes

By the end of this module, students should be able to:

i) Explain Brønsted and Lewis definitions of acids and bases.
ii) Explain the properties of the main compounds,
iii) Identify effective method for extracting metals;
iv) Establish electronic configurations using s, p, d, f orbitals for s & p block elements;
v) Predict chemical formulae of compounds of s & p block elements based on valence;
vi) Write chemical formulae of compounds of s & p block elements based on valence.
vii) Interpret the trends of ionization energy, electron affinity, atomic radius; metallic and non-metallic character of elements in the periodic table.
viii) Analyze industrial production of common inorganic compounds and their uses

Module 4: Physical Chemistry I

Indicative content

The goal of this module is to provide deep knowledge and understanding of physical chemistry and its real-life applications used to solve societal problems.

It focuses on fundamental physics for chemists including physical and non-physical quantities; properties of matter: phases of matter, density and elasticity, Berbouilli's equations for ideal fluid flow; Thermal Physics: thermometers, coefficient of thermal expansion, conservation of energy details on atomic theory, molecular theory, states of the matter, ideal gas law, chemical reaction, reaction rates, and integration of rate laws. The module also emphases on rate laws and equilibrium constants for elementary reactions, temperature dependence of rate constants, reaction mechanisms and catalysis. Also, the concepts such as chemical kinetics and thermodynamics are studied. Furthermore, the module focuses on homogeneous and heterogeneous catalysis, reaction mechanisms, elementary reaction and molecularity of a reaction, the state of transition, the activated complex, the activation energy and principal methods to study the reaction rate. Practicals are centered on determination and quantification of heat, endothermic and exothermic reactions, spontaneous and non-spontaneous reactions as well as determination of rate of reactions.

Learning outcomes

By the end of this module, students should be able to:

i) Distinguish physical and non-physical quantities
ii) Describe properties of matter
iii) Explain the concepts in thermal physics and their application in chemistry
iv) Explain the concepts of chemical kinetics and thermodynamics;
v) Explain effect of temperature on the spontaneity of a chemical reaction;
vi) Determine heat of reaction, combustion, hydration, fusion, vaporization, crystallization and enthalpy of formation;
vii) Calculate the rate constants for first and second order reactions;
viii) Predict the spontaneousness of a reaction;
ix) Interpret the collision model of chemical reactions;
x) Analyze factors affecting rate of chemical reaction.

Module 5: Organic Chemistry

Indicative content

The goal of this module is to equip students with deep knowledge and understanding of principles of organic chemistry and how they are related to real life phenomena. It focuses on general introduction to organic chemistry: chemistry of carbon, types of carbon bonds, types of carbon backbones & common types of isomerism in organic chemistry, orbital hybridizations, formal charges, formulas (Lewis, figure and stick, condensed). It emphasizes saturated hydrocarbons, unsaturated hydrocarbons, hydrocarbon derivatives. This module also focuses on the study of various organic functions including alcohol, aldehyde, ketone, carboxylic acid, amide, amine, nitrile, ethers, esters as well as their physical and chemical properties. Finally, it deals with aromatic chemistry.

Learning outcomes

By the end of this module, students should be able to:

i) Differentiate functions of organic compounds;
ii) Identify suitable methods to prepare various compound belonging to different functional groups;
iii) Interpret the reactions and properties of alcohols and phenols, ketones, ethers and epoxides, amine and aldehydes;
iv) Prepare different organic compounds using different methods;
v) Apply conversion of carboxylic acids to their derivatives to carry out reactions;
vi) Interpret the concept of aromaticity and the main properties of aromatic compounds;
vii) Test the samples for the presence of functional groups;
viii) Use chemistry software to draw organic compound structures and equations of reactions

Module 6: Electrochemistry and Analytical Chemistry

Indicative content

This module provides students with competences of solving real life analytical and electrochemical problems. It explains aqueous solutions, conductivity of aqueous ionic solution, concentration, oxidation number and its determination, redox reactions, balancing redox equations. The module also treats galvanic, voltaic, dry and electrolytic cells as well as corrosion. Also concepts such as acidity, alkalinity, pH, buffer solutions, solubility in polar and non- polar solvents, salts hydrolysis, gravimetric titrimetric analysis were not left behind. Finally, the module deals with preparation of the solutions as well as acid-base, complexometric and redox titrations. Practical sessions are concerned with conductivity, redox reaction, electrochemical cell, electrolytic cell and corrosion, preparation of standard solutions and buffer solutions, pH determination, gravimetric analysis, volumetric analysis, and various types of titrations experiments.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the functionality of the batteries;

ii) Explain concepts of aqueous solutions, acidity, alkalinity, pH and buffer solutions and solubility;

iii) Prepare aqueous solutions;

iv) Analyze the causes of corrosion of objects made in metals;

v) Construct electrochemical cells and secondary batteries;

vi) Apply electrolysis principles to carry out chemical reactions;

vii) Use the methods of gravimetric and titrimetric analysis of chemical samples;

viii) Carry out experiments concerning acid-base, complexometric and precipitation titrations and produce a scientific report.

Module 7: Transition Metal Chemistry

Indicative content

This module aims to equip students with knowledge and skills to explore the roles of transition metals, their methods of extraction and identification. It focuses on general properties of transition metals and their origin, electronic configuration, variable oxidation states and consequences, Study of the elements of the first series and other commonly used elements, definition and nomenclature of complexes. The module also tackles structures of coordination Compounds, stability of transition metal complexes. Finally, it emphasizes on extraction of transition metals from ores as well as dangers associated with metal and metal extraction and prevention measures. Practical session is concerned with demonstration of the reactions of transition metals, identification tests of transition metal cations, conditions for iron corrosion and redox titration.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the occurrence, stability, physical and chemical properties, production and industrial applications of transition metals;

ii) Explain the formation of alloys and their use;

iii) Determine oxidation states and assign d-electron counts for transition metals in complexes;

iv) Extract the transition metals from their ores;

v) Explain the structures, nomenclature, geometry, physical and chemical properties of transition metals;

vi) Analyze industrial production processes of common transition metals;

vii) Carry out the experiments related to the various reactions of transition metals and produce a scientific report;

Module 8: Biochemistry

Indicative content

The goal of this module is to provide students with a deep understanding of the role and necessity of biomolecules for the survival of living organisms. It details general definitions and structures of the biomolecules (carbohydrates, amino acids, proteins, lipids, nucleic acids, enzymes), the study of general properties, nomenclature, classification and biological roles of biomolecules, the study of enzyme kinetics, carbohydrates' metabolism (glycolysis, Krebs cycle, oxidative phosphorylation, and gluconeogenesis), the lipid metabolism (β-oxidation, ω-oxidation, and anabolic pathway of triglycerides), proteins and amino acids' metabolism (amino acids degradation and urea cycle)**.** The biochemistry practical session will mainly concern isolation, testing the presence, estimation of the amount of main biomolecules in food stuff.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the structures, classification, general properties, and biological roles of biomolecules;

ii) Discuss modern techniques of biomolecules analysis;

iii) Describe the relationship between initial velocity and substrate concentration for competitive and non- competitive inhibitors;

iv) Interpret the carbohydrates, lipid, proteins and amino acids' metabolism;

v) Perform experiments related to the isolation, testing and estimation of amount of the biomolecules in living organisms;

vi) Test in the laboratory the presence of biomolecules such as carbohydrates, lipids, protein in food stuff;

vii) Categorize the main sources of biomolecules and their distribution in living organisms.

Module 9: Physical Chemistry II

Indicative content

This module aims at equipping students with knowledge and skills to be able to use applications of physical chemistry to solve societal problems. The module focuses on comparison of ideal gas and real gas, Van der Waals equation, phase equilibrium thermodynamics application to phase transition, the phase rule, Gibbs phase rule and its applications. It also clarifies Clausius-Clapeyron equation and its applications, effect of pressure and temperature on physical state as well as colligative properties and their applications. Finally, the module provides details on Henry and Raoult's law and their applications, types of chemical reactions (reversible and irreversible)**,** equilibrium condition and law of equilibrium, equilibrium constants (K_c), equilibrium expression involving pressure (K_p), relationship between K_c and K_p)**,** characteristics of homogeneous and heterogeneous equilibria and h Le Châtelier's principle.

Practical sessions are centered on determination of viscosity and surface tension, study of colligative properties, demonstration of the molar heat of vaporization and various physical and chemical equilibria.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the equilibrium nature of phase changes;

ii) Differentiate between real gas and ideal gas;

iii) Determine the effect of the pressure and the temperature on the boiling and solidification of the liquid;

iv) Apply Le Chatelier's principle for industrial use;

v) Interpret Henry and Raoult's laws and their applications;

vi) Demonstrate an understanding of Gibbs phase rule and its applications;

vii) Analyze factors affecting a given chemical equilibrium position.

Module 10: Industrial and Environmental Chemistry

Indicative content

The goal of this module is to provide deep knowledge and understanding on applications of chemistry to understand and solve industrial and environmental issues.

The module provides details on industrial operations compared to laboratory operations, reactions and reactors, types of reactors, effect of simultaneous or competitive reactions on the performance of the reactor. Further, it gives selected examples of industrial production, classes of chemical substances present in the environment, their properties, distribution, and transport in different environmental compartments, environmental problems introduced by industrial processes such as pollution, greenhouse effect, global warming and their consequences; reactions and reactors, types of reactors. The module also emphasizes sources of air, soil and water pollution. It highlights principal classes of pollutants (organic and inorganic), waste production and treatment. Practical sessions are focused on sampling of

water, soil and air, measuring chemical parameters of water such as conductivity, chemical oxygen demand, hardiness, temperature and salinity.

Learning outcomes

By the end of this module, students should be able to:

i) Explain industrial production, classes of chemical substances present in environment and their transport in different environmental compartments;

ii) Explain the sources of air, soil and water pollution, from natural and anthropic activities;

iii) Discuss the problems of waste production and management;

iv) Describe the principal classes of pollutants;

v) Compare the industrial operations and laboratory operations, reactions and reactors;

vi) Compare and contrast the industrial operations and laboratory operations;

vii) Carry out the experiments related to sampling of water, soil and air, and measuring their chemical parameters and produce a scientific report.

2.7.4 Computer science modules

Brief description and aims

The aim of this programme is to produce advanced diploma computer science teachers capable of using and teaching computing principles, concepts, and techniques to design, implement, manage, and maintain computing and communication systems that address and provide solutions to various activities for the benefit of humanity. The students will get the knowledge and skills about various modules that will enable them to teach various courses in secondary schools and get introduced to the world of computer science.

Learning outcomes

By the end of this program, students should be able to:

i) Explain broad concepts, principles, theories relating to computer science and software applications;

ii) Model computer bases systems;

iii) Implement computer bases systems;

iv) Evaluate computer-based systems;

v) Apply a defined range of computer science theory and software development fundamentals to produce computing-based solutions;

vi) Adapt a range of modern tools to develop computer software/applications.

Table 23: **Distribution of Computer Science modules**

S/N	Module	Year of study	Semester	Credits
1	Data Structures and Algorithms with C++	1	1	10
2	Computer Networks and Information Security	1	1	15
3	Databases and Web Programming	1	2	15
4	Computer Systems and Maintenance	1	1	10
5	Object Oriented Programming with Java	2	1	15
6	Computer Graphics and Multimedia	2	1	15
7	Mobile Applications Programming	2	2	10
8	Software Engineering	2	2	10
9	Machine Learning with Python	3	1	10
10	Operating System	3	1	10
Total credits				**120**

Module 1: Data Structures and Algorithms with C++

Indicative content

This module aims to give the student all necessary knowledge and skills in data structures, algorithms, and object-oriented programming by using C++ language. The students will learn fundamentals of programming including variables and Constant Declaration, data types, operators, and expressions; Logic Design: flowchart and pseudocode for algorithm design; Functions, Coroutine and Sub-programs, Library, and internal functions v/s User defined functions. Parameter-passing mechanisms, returning result argument. The introduction to object-oriented paradigm with C++: Class, Object, Inheritance, Polymorphism, data abstraction will also be discussed in this module. The learners will get the knowledge of linear data structures and their algorithm presentations: Arrays, Stacks and applications, Infix, Prefix and Postfix Expressions, Recursion, Queues, Pointers, Linked allocation, Linear Linked Lists, Circular Linked Lists, Doubly Linked Lists. The concept of nonlinear data structures and their algorithm presentations: Trees, Graphs, Multidimensional arrays will be also discussed in this module. Finally, the module will introduce different Sorting and searching algorithms.

Learning outcomes

By the end of this module, students should be able to:

i) Differentiate the major constructs of a program;

ii) Explain the major data structures and manipulate them;

iii) Create programs that include a range of data structures involving arrays, linked lists, stacks, queues and trees;

iv) Implement a range sorting and searching algorithms using C++ programming;

v) Communicate and present effectively reliable and coherent information using appropriate professional conventions and formats for various types of data structure;

vi) Take the lead on choosing appropriate data structure while designing programs.

Module 2: Computer Networks and Information Security

Indicative content

The aim of this module is to help the students get the knowledge and skills to create a computer network to facilitate the accessibility and sharing of resources and information to anyone on the computer network as well as the information system. It discusses computer network basics, IP addressing, subnetting and supernetting knowledge, and Domain Name Space (DNS) - SMTP, FDP, HTTP, WWW. The module will also discuss information security: CIA Triad, Security Terminologies, Security Protocols, Security Policies and Management, Multilevel and multilateral Policies, Security Mechanisms, Security Design Principles, and architecture. It also discusses the concepts of threat analysis and risk assessment, Securing a System, Basic Techniques of Cryptography, Digital Signatures, Cryptanalysis, Network Security, Vulnerabilities, Attacks, Defenses, incident-handling and contingency planning, risk assessment and management.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the fundamentals of computer networking;

ii) Differentiate the major components of computer networks, network layered approach, various protocols, modern technologies, and their application;

iii) Implement a simple LAN with hubs, bridges, WIFI Access Points and switches;

iv) Use basic tools, processes and methods to ensure security of systems and protection in a virtual environment;

v) Apply cryptographic methodologies to maintain the Confidentiality, Integrity and Availability of data;

vi) Implement secure systems using cryptographic techniques and network security protocols;

vii) Discuss network security applications, IPSec, Firewall, IDS, Web Security, Email Security and Malicious software;

viii) Communicate effectively in a team environment to analyze security threats and implement solutions.

Module 3: Databases and Web Programming

Indicative content

The aim of this module is to provide the students with the required technical skills in the creation of high quality, usable, accessible web applications using industry-standard technologies. It discusses the basic concepts of databases, data models and representation of data, database functions. The concepts of database design: Database structure design issues, functional dependency, anomalies due to partial or transitive dependency, theory of normal forms for improved database design will be discussed in this module. The module will also discuss the Un-normalized Relations, Relations in 1st, 2nd, and 3rd Normal forms. RDBMS, Relational Algebra and Relational Calculus, Introduction to DDBMS. The module will also discuss the Web design: Client-side/front-end technologies (HTML, Cascading style sheet (CSS), JavaScript), Server-side technologies (PHP Scripting Language, MySQL). Finally, the module will give the introduction to web design with a content management system (CMS).

Learning outcomes

By the end of this module, students should be able to:

i) Differentiate the basics of database management systems, databases, and their applications;

ii) Use a range of appropriate front-end web technologies to design dynamic websites that meet specified needs and interests;

iii) Develop web-based applications in PHP with some of the most important functionalities the language provides;

iv) Evaluate arguments on issues which are within the common understandings of various content management systems;

v) Select web technologies to address societal problems through research and scholarships;

vi) Use web technologies to address societal problems through research and scholarships

vii) Work with others in support of current professional practice under guidance to develop web applications.

Module 4: Computer Systems and Maintenance

Indicative content

The aim of this module is to introduce the concept of computer systems, the basic building blocks of a computer system and their functions, and to provide hands-on skills on computer maintenance. The students will get knowledge of data, information, binary number system, Input/Output devices, storage, control devices, Central Processing Unit. They will also learn the Memories, Data files: Random and sequential, Disk storage: track, sector, cluster, and surface. Boolean Algebra and digital logic: Rules, Theorems, Algebraic simplification, Karnaugh map, Logic gates as basic building blocks, Integrated Circuits, and different levels of integration, functional components of computers based on the Von Neumann architecture will also be discussed in this module. The maintenance will give the hands- on diagnosis of common computer hardware and software errors/problems, their causes and troubleshooting;

assembling and dismantling computers, hard disk partitioning; operating systems and software installations. The student will learn the Safety and Ethical Use of Computers.

Learning outcomes

At the end of this module, students should be able to:

i) Discuss the structure, function, and characteristics of computer systems;

ii) Use Boolean algebra and the Karnaugh map as tools to simplify and design logic circuits;

iii) Carry out personal Computer hardware and software installation, configuration, and upgrading;

iv) Perform preventive maintenance, advanced diagnosis, and troubleshooting;

v) Analyze a given computer problem and apply a systematic scheme and method for computer maintenance;

vi) Develop a maintenance guide to be used in a computer workshop;

vii) Generate income by using computer maintenance skills acquired from this module;

viii) Exercise personal responsibility and autonomy to work and deal with complex and novel situations in computer maintenance.

Module 5: Object-Oriented Programming with Java

Indicative content

This module aims to equip the students with knowledge and skills about object-oriented programming with Java. The students will get introduced to Java programming and in-depth practice about OOP concepts including Classes and objects, data abstraction, encapsulation, inheritance, polymorphism. They will also deal with Files and connecting to databases, querying a database, and processing the results, updating data with JDBC. The notions of Exception Handling, Multithreading, GUI programming and applets. Containers: JFrame, JApplet, JDialog, Jpanel, overview of AWT API and Swings components: JButton, JLabel, JTextField, JTextArea, simple applications will be discussed in this module. Learners will get the knowledge of Layout management: Layout manager types, border, grid, and flow. Finally, the module will discuss the Applets: Inheritance hierarchy for applets, differences between applets and applications, life cycle of an applet, passing parameters to applets.

Learning outcomes

By the end of this module, students should be able to:

i) Analyze problems and design solutions using object-oriented programming concepts and Java language features;

ii) Apply the object-oriented programming language to develop software, including programs utilizing multiple Classes using the java programming language;

iii) Design event driven GUI and web related applications which mimic the real-world scenarios;

iv) Communicate effectively in a team environment to analyze and devise a Java based application;

v) Generate income by using Internet and Java programming techniques and skills acquired from this module.

Module 6: Computer Graphics and Multimedia

Indicative content

This module aims to introduce well-rounded computer graphics and multimedia to the learners. It discusses the introduction to Computer Graphics, Display Devices and Graphics Hardware, Graphics Software, Color Theory and Color Models, 2D and 3D graphics, and Computer Animation. The module will help the learners to understand Multimedia Elements and Authoring Programs, Data Compression, Multimedia Operating Systems, and Multimedia Communication Systems. The module will give the Case Study: Digital Camera Manipulation, using a scanner to capture images, setting resolution and manipulation with the authoring tools. Learners will learn Scratch programming case studies: Writing games, animations, and stories using scratch. Finally, the module will discuss GIS and Computer graphics: Introduction to GIS, GIS applications, Design and manipulate maps with GIS software like ArcGIS and QGIS.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the basic concepts in computer graphics and multimedia;

ii) Use a limited range of modern graphics API to create graphics applications of different types;

iii) Create and integrate multimedia into various applications;

iv) Use Scratch programming to program various applications in education;

v) Apply GIS software to generate maps and analyze spatial data;

vi) Use graphics techniques and their associated interactive tools to the current state of the art;

vii) Develop a multimedia solution using graphics design authoring tools appropriate in the education system.

Module 7: Mobile Applications Programming

Indicative content

This module aims to provide learners with the ability to design, develop, test and deploy native touchscreen mobile applications that adhere to the design guidelines of the targeted smartphone operating system. It introduces the Android Operating System, Android Design Patterns and Guidelines. Setup Android Development Environment: Installing Android Studio IDE, Installing Android SDK, Installing Android Packages, and Creating an Android Virtual Device (AVD). Creating Android Apps that include different layout components (Text View, Image View, Button, Relative Layout, Linear Layout, RecyclerView, GridView,...). The module will also help learners create an app with multiple Activities, Drawables, Toast

Messages and Alert Dialogs. The learners will learn about working with the Android Manifest file, uses-permissions, audio files, videos, menus, SQLite database, Firebase and Maps, Running an Android app (AVD, Android phone), and generating unsigned and signed APK.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the basic aspects of a mobile phone operating system and its subsystems;

ii) Develop Android applications that take advantage of advanced phone features and deploy them in the marketplace;

iii) Implement, debug and test mobile phone applications using an OS emulator;

iv) Deploy mobile applications to app stores, such as Google Play or Apple App Store, and know how to handle the submission and approval process;

v) Work collaboratively in a team environment to develop mobile applications and understand the importance of project management tools;

vi) Take the lead on planning in familiar or defined contexts the appropriate mobile applications to solve a real-life problem.

Module 8: Software Engineering

Indicative content

The aim of this module is to teach several important areas of software engineering concentrating on the specification and design of software systems and project management. It discusses the Software Engineering Methodology and SDLC: Different methodologies, Prototyping, waterfall model, Iterative Spiral model, Rapid Action Development model, System Development Life Cycle, Brief introduction of various Phases of SDLC. The learners will get the knowledge about introduction to System Analysis and Design. The Role of the Systems Analyst, System Analysis. Information Gathering: The Tools for Information representation: Data Flow Diagram (DFD) will be discussed in this module. Learners will get the knowledge of Data Dictionary, Decision Tree, Decision Tables, and System Design. The concepts of Object-Oriented Development, System Testing and Quality Assurance, User Training, Implementation and Maintenance will be discussed in this module. The module will also tackle the project Scheduling and Software: What is Project Management, Tools for Project Management. Finally, the notions of Computer Aided Software Engineering (CASE tools), Gantt chart, and pert chart will be discussed in this module.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the basic Software Development Life Cycle models and Methodologies;

ii) Explain the major principles and practice of the development of software systems;

iii) Manage Software Project to ensure good quality software with high reliability;

iv) Use a defined range of tools and techniques when developing software systems.

v) Develop test plans for execution;

vi) Perform quality assurance to ensure the software meets the requirements and is of high quality;

vii) Communicate effectively in a team environment to develop software projects.

Module 9: Machine Learning with Python

Indicative content

This course aims to equip students with knowledge and skills for data processing using Python programming language and teach a computer to learn concepts using data without being explicitly programmed. Students will be introduced to concepts of Python, cost function, and the gradient descent method for learning. Popular machine-learning algorithms will be used to tackle classification, regression, and clustering problems.

Learning outcomes

By the end of this module, students should be able to:

i) Import and wrangle data using Python libraries and divide them into training and test datasets;

ii) Apply machine learning techniques to real-world problems.

iii) Train and evaluate machine learning models using appropriate metrics and techniques like cross-validation and hyperparameter tuning.

iv) Take personal responsibility for determining appropriate machine learning methods for supervised and unsupervised problems.

v) Work with others to develop machine learning projects to improve education system

Module 10: Operating Systems

Indicative content

This module focuses on the concepts involved in the design of operating systems, understanding their complexity and many requirements. It introduces the overview of Operating Systems' background and basics. The notions of Processes and Threads: Context Switches, Synchronization and CPU Scheduling; Deadlock: Deadlock overview, deadlock prevention and avoid deadlock, Methods for recovering from a deadlocked state, and Deadlock detection will be discussed in this module. Learners will also get the knowledge of Memory Management, Memory allocation and memory access; File System: File allocation methods, and disk allocation algorithms. The module also introduces Security: Different types of malware, security techniques like access controls, intrusion detection and malware defense. In this module, the concepts of Real-Time applications and classification: Digital Control, High-Level Controls, Signal processing and other applications, Jobs and Processors, Release Times, Deadlines, Constraints, Hard Real-Time Systems, Soft Real-Time Systems, and programming language constructs for parallel computing will be discussed.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the basic concepts of operating systems and their structure, processes, and threads;

ii) Analyze the memory management techniques;

iii) Apply files and I/O management in a computer system;

iv) Discuss algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, and Response Time;

v) Exercise autonomy and initiative to decide on appropriate operating Systems in a given environment;

vi) Use a defined range of techniques and approaches in teaching operating systems.

2.7.5. Biology modules

Brief description and aims

The Advanced Diploma of Education in Biology is a three-year programme aims at producing qualified biology secondary school teachers capable of demonstrating the mastery of biology content knowledge, practical skills and professional skills and attitudes for teachers. It is designed in a way that gives student teachers the opportunity to explore various learning materials to deepen the understanding of biology concepts and strengthen practical skills, and conduct research responding to their professional career as well as daily life situations. Graduates from the programme will have to complete 10 biology modules in addition to the general modules of education, specific teaching methods as well as school attachment.

Learning outcomes

By the end of this programme, students should be able to:

i) Explain the content proposed in biology modules of this programme;

ii) Use acquired knowledge, skills and attitudes in the teaching and learning of biology at secondary school level;

iii) Demonstrate ability to connect biology to the daily life and in the implementation of the science curriculum;

iv) Use the knowledge and skills acquired in biology modules to solve problems encountered in life;

v) Organize practical sessions and support students to conduct practical works proposed in school syllabus;

vi) Contribute to socio-economic development using knowledge, skills and attitudes gained from modules of this programme;

vii) Integrate knowledge and skills acquired in this programme in the labor market.

Table 24: Distribution of biology modules

S/N	Module	Year of study	Semester	Credits
1	Cell Biology	1	1	10
2	Plant Diversity, Structure and Function	1	1	15
3	Genetics	1	2	10
4	Animal Diversity, Structure and Function	1	2	15
5	Human Biology and Elements of Ecology	2	1	15
6	Biology Laboratory Techniques	2	1	15
7	Diseases and Public Health	2	2	10
8	Developmental Biology	2	2	10
9	Parasitology	3	1	10
10	Introduction to Molecular Biology and Biotechnology	3	1	10
Total credits				**120**

Module 1: Cell Biology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of cell biology. It focuses on levels of biological organization, history of the cell theory, unifying theories in study of life; types and chemical identification of biomolecules; microscopy and cell fractionation; structure, ultrastructure and function of plant and animal cells and organelles; cell cycle, mitosis and meiosis; cell communication: signaling, apoptosis, tumors, and cancers.

Learning outcomes

By the end of this module, the students should be able to:

i) Describe macromolecules of life;

ii) Differentiate types of cells and cell organelles in maintenance of life;

iii) Discuss structure and functions of cell parts and cell organelles;

iv) Observe plant and animal cells using light microscope;

v) Explain the cell cycle and distinguish mitosis from meiosis;

vi) Explain process of cell signaling and communication;

vii) Establish the relationship between cell division, cell signaling and communication, tumor formation and cancers.

Module 2: Plant Diversity, Structure and Function

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of the diversity, anatomy, and physiology of plants. It focuses on principles of plant classification and nomenclature; dichotomous keys of classification; non-flowering plants (characteristics, reproduction, life cycle, ecology and economic importance of Algae, Bryophytes and Pteridophytes); Gymnosperms and Angiosperms (characteristics, reproduction, life cycle ecology and economic importance); tissues and organs of plants; plant physiology (transport in plants, transpiration, photosynthesis, respiration, and seed germination).

Learning outcomes

By the end of this module, students should be able to:

i) Explain the principles of plant classification;

ii) Analyze plants specimens in a selected area to establish heterogeneity and evolution of plants from algae to angiosperms;

iii) Differentiate non-flowering plants and flowering plants;

iv) Discuss the ecological and economic importance of plants;

v) Describe different plant tissues and organs;

vi) Describe the mechanisms of transport in plants, transpiration, respiration, photosynthesis, and seed germination.

Module 3: Genetics

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of genetics and inheritance. It covers genetics concepts (gene, allele, dominance/recessive gene or allele, character, phenotype, genotype, monohybridism, and dihybridism); Mendelian genetics (monohybridism and dihybridism); test cross; Supplements to Mendel's experiments: Incomplete dominance; Co-dominance; Sex-linked heredity; Applications of Genetics: Crop and animal husbandry improvement.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key concepts of genetics and heredity;

ii) Describe the mechanism of the transmission of genetic traits;

iii) Interpret phenotypes and genotypes data of a given hybridization from the Punnett square;

iv) Explain principles and laws of Mendelian genetics and their supplements;

v) Relate the genetic code to the process of protein synthesis;

vi) Describe the process of meiosis in gene segregation;

vii) Solve problems using Mendelian laws and supplements of genetic inheritance;

viii) Appreciate any aspects pertaining to Genetics and show awareness on the application of knowledge and skills about Genetics.

Module 4: Animal Diversity, Structure and Function

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of animal diversity, anatomy, and physiology. It focuses on the principles of animal systematics; characteristics and classification of Protozoa, invertebrates (Porifera, Cnidaria, Platyhelminthes, Nematodes, Annelids, Arthropods Mollusks, Echinoderms) and vertebrates (fish, amphibians, reptiles, birds, and mammals); animal tissues; animal organ systems (skeletal, muscle structures, digestive, respiratory, circulatory, excretory, and coordination systems); animal physiology (digestion, respiration, excretion, homeostasis, and coordination).

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the principles of animal systematics;

ii) Characterize animals of each animal phylum: Protozoa, invertebrates, and vertebrates;

iii) Collect various animal specimens and classify them;

iv) Describe different types of animal tissues;

v) Describe animal organ systems: Skeletal, muscle structures, digestive, respiratory, circulatory, excretory, and coordination systems;

vi) Explain animal physiology: digestion, respiration, excretion, homeostasis, and coordination.

Module 5: Human Biology and Elements of Ecology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of human biology and introduction to ecology. It focuses on origin and ancestry of man; shared features and differences between man and apes; hominid evolution, characteristics of hominid species; human anatomy (organs and systems) and physiology; social hazards (smoking, alcoholism, drug abuse); sexually transmitted diseases, and measures of prevention; ecological levels: individual, population, community, and ecosystem; ecosystem interactions and nutrient cycling; current environmental issues and solutions.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the perspective of human origin and ancestry;

ii) Establish key anatomical similarities and differences between the great apes and humans;

iii) Describe the adverse effects of smoking, alcoholism, drug abuse;

iv) Explain transmission, consequence, and prevention of sexually transmitted diseases including HIV-AIDS;

v) Describe the anatomy and physiology of human tissues and organ systems;

vi) Differentiate ecological levels: individual, population, community, and ecosystem;

vii) Explain ecosystem interactions and nutrient cycling;

viii) Analyze current environmental issues the Earth is facing using case studies to suggest adaptation and mitigation measures.

Module 6: Laboratory Techniques and Scientific Methods in Biology

Indicative content

This module aims at introducing the scientific methods and laboratory techniques to students of biology. It focuses on safety guidelines and practices; designing an experiment with controls; design and carry out field observational study; write a method that can be followed by another investigator; techniques and technology used in biology laboratory (rearing laboratory animals; microscopy, collection, sampling, classification, preservation of plant and animal specimens; dissection of plant and animal specimens); experiments to illustrate plant animal physiology; Preparation of culture media and growing microorganisms; observation of invertebrate and vertebrate ectoparasites and endo-parasites; microscopic observation of vertebrate embryonic stages.

Learning outcomes

By the end of this module, students should be able to:

i) Learn and apply safety guidelines and practices;

ii) Carry experiments with controls field observational study;

iii) Write a method that can be followed by another investigator;

iv) Apply techniques and technology used in biology laboratory;

v) Sample, collect, classify, and preserve plant and animal specimens;

vi) Conduct experiments to illustrate course learnt in cell biology, anatomy; physiology, microbiology, ecology, developmental biology, and parasitology;

vii) Develop models and use interactive learning tools and ICT.

Module 7: Disease and Public Health

Indicative content

This module aims at introducing students to microbiology and imparting them with the knowledge of epidemiology of infectious and non-infectious diseases of importance in Africa. It focuses on introduction to microbiology; types of diseases: infectious and non-infectious; microbial pathogens and diseases: bacteria, protozoa, fungi, and viruses; evolution of harmful

strains; prevention and treatment of diseases; immune system (innate and specific immune); epidemiology of common infectious diseases in Africa; social factors affecting good health: sanitation, drug abuse-antibiotics, alcohol, smoking, marijuana; Sexual education, behavior, and response.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the diversity and physiology of microorganisms;

ii) Distinguish types of diseases;

iii) Explain the evolution of harmful strains and the relationship between diseases and microbial pathogens;

iv) Select appropriate measures to prevent and treat diseases caused by microbial pathogens;

v) Explain the components and functioning of the immune system;

vi) Establish the patterns of incidence, and distribution of common infectious diseases in Africa;

vii) Explain social factors affecting human health.

Module 8: Developmental Biology

Indicative content

This module aims at enhancing knowledge and understanding processes and changes that take place from the embryonic development to the adult. It focuses on principles of development, internal and external factors of growth and development in plants and animals, egg organization and origins of cell differentiation, embryonic membranes and organogenesis in plants and animals, and seed propagation.

Learning outcomes

By the end of this module, students should be able to:

i) Explain basic principles, mechanisms, and events during animal and plant development;

ii) Explain developmental processes from a fertilized egg to an adult organism;

iii) Describe the stages of embryonic development;

iv) Explain the origin and specification of germ layers for the development of organisms;

v) Describe processes of embryonic development: regional specification, cell differentiation, morphogenesis, and growth;

vi) Investigate the effect of endogenous and synthetic regulators on plants and produce a scientific report;

vii) Describe mechanisms of development of higher organisms;

viii) Establish the relationship between embryonic layers and system organs.

Module 9: Parasitology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of the parasitic life. Life cycles and control measures of parasitic pathogens. It focuses on introduction to general parasitology; nature of parasitic life (advantages and disadvantages); morphology, occurrence, medical concern, reproduction, transmission, pathogenesis, diagnosis, treatment, prevention & control of vertebrate parasites (malaria, trypanosoma, *Schistosoma* of humans, *Fasciola* of sheep, goats and cows, *Wuchereria*, *Onchocercus*, Guinea worm; cestodes of man and domestic animals, geohelminths); pathogen evasion mechanisms.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of parasitology;

ii) Describe relationships that can exist between parasites and hosts;

iii) Discuss effects of parasites on the host;

iv) Describe the life cycle and epidemiology of invertebrate parasites of importance in Africa;

v) Select a control programme that would be effective against a given parasite;

vi) Examine invertebrates and lower vertebrates for the presence of parasites and identify them.

Module 10: Introduction to Molecular Biology and Biotechnology

Indicative content

This module aims at introducing students to techniques and the importance of molecular biology and biotechnology. It focuses on nucleic acids and DNA replication; gene expression: transcription, translation and gene regulation in prokaryotes and eukaryotes; techniques for extraction and purification of nucleic acids, gel electrophoresis and PCR; recombinant DNA gene technology; enzymes: nomenclature, characteristics, importance, and enzyme technology; Tissues culture: plant cells culture and animal cells culture; genetically modified organisms: transgenic animals and plants, plant tumors, applications, and implications of recombinant DNA technology.

Learning outcomes

By the end of this module, students should be able to:

i) Explain how the gene functions, expresses, and regulates information;

ii) Discuss principles underlying techniques of molecular biology;

iii) Explain DNA recombination and Genetically Modified Organisms (GMOs);

iv) Establish relationship between gene function and human genetic disease;

v) Describe molecular biology techniques to modify living organism for specific use;

vi) Describe DNA extraction and purification, gel electrophoresis and PCR;

vii) Isolate nucleic acids, proteins, and plasmids for specific use;

viii) Analyze various life aspects in applications of molecular biology and evaluate the ethical aspects of the use of GMOs.

2.7.6 Geography modules

Brief description and aims

Geography encompasses all phenomena of the world we live in. The purpose of studying this programme is to ensure that qualifying student teachers of geography acquire the competences that will enable them to teach Geography modules tackling the interaction of human, physical and environmental problems which affect daily human lives. They will be also equipped with the practical and techniques skills to be applied in their teaching and learning process in secondary schools.

Expected learning outcomes

By the end of this programme, students will be able to:

i) Describe physical and human features on the earth surface and their interaction with the atmosphere;

ii) Assess the current national and global demographic and economic aspects and issues;

iii) Identify the earth's surface structure and dynamics, and their impact on landscape, environment and human activities;

iv) Examine the process of rural and urban spaces transformation, settlement, and the threats to their planning and development;

v) Analyze the local and global developmental issues;

vi) Engage in reflective thinking about environmental problems and sustainability;

vii) Use appropriate methods and procedures to conduct a fieldwork and suggest adapted solutions.

Table 25: Distribution of Geography modules

S/N	Module	Year of study	Semester	Credits
1	Human Geography	1	1	15
2	Physical Geography I	1	1	10
3	Physical Geography II	1	2	15
4	Geography of Rwanda	1	2	10
5	Geography of Continents	2	1	10
6	Environmental Geography	2	1	10
7	Applied Geography	2	1	10

8	Cartography and Photo Interpretation	2	2	10
9	GIS and Remote Sensing	2	2	10
10	Rural Geography	3	1	10
11	Urban Geography	3	1	10
Total credits				**120**

Module 1: Human Geography

Indicative content

This module aims at giving students a basic knowledge of concepts of human geography. It exposes the main aspects and approaches of political geography, economic geography, and population geography. This module aims at giving to the students a basic knowledge, skills, and attitudes to develop a deeper understanding of geography key concepts, its historical evolution and the interaction between man and environment. It also explores the main aspects of political geography and population geography. It also describes the main economic activities that are agriculture, industry, transport, tourism, and international trade. The module presents also the main issues related to contemporary issues and globalization since the modernization era with special emphasis on third world countries.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain geography and its evolution;

ii) Analyze the status of governments, the boundaries and subdivisions of states and nations and the ways that people and governments control and dispute space;

iii) Apply the techniques of measuring the demographic processes using the main demographic dynamics;

iv) Describe the main demographic models, theories and population policies;

v) Explain the keys aspects and branches of economic geography and put them in the Rwandan context;

vi) Explain the origin and evolution of main economic systems;

vii) Apply appropriate educational knowledge and skills to teach human geography.

Module 2: Physical Geography I

Indicative content

This module aims at providing to the students, deep knowledge and understanding of the universe and galaxies, notions of mineralogy, petrography, stratigraphy. It deals specifically with internal geodynamics of the earth as well as orogenesis. It provides a deep description of the external geodynamics of the earth. Additionally, this module provides theoretical and practical knowledge and skills of the field works.

Learning outcomes

By the end of this module, students should be able to:

i) Describe types of stars, galaxies and universe;

ii) Describe minerals and rocks as well as their physical and chemical properties;

iii) Identify economic benefits from minerals, rocks and landforms;

iv) Analyze internal structure and composition of the earth;

v) Describe internal and external geodynamics;

vi) Use effectively various teaching resources including geographical documents, maps, illustrations, internet, audio-vision documents and field data in teaching and learning processes;

vii) Use cost effective resources for learning and teaching Geology and Geomorphology.

Module 3: Physical Geography II

Indicative content

This module aims at providing to the students the basic knowledge of atmosphere and earth's movements and their consequences. It describes different elements of weather/climate. It also deals with soil forming factors and processes, physical and chemical properties of soils as well as soil catena and profile. It classifies soils at different scales and discusses the soil erosion and appropriate measures to deal with it as well as the economic importance of soils. It also describes the field work.

Learning outcomes

By the end of this module, students should be able to:

i) Show the position of the earth in the solar system and explain earth's movements and their consequences;

ii) Analyze the structure, composition and importance of the atmosphere;

iii) Describe different elements and factors of weather/climate and their interactions with other natural aspects;

iv) Describe the soil formation processes, soil components, properties and types as well as soil catena and profile;

v) Discuss different types of soil erosion and suggest the most appropriate measures to deal with it;

vi) Classify soils at different scales;

vii) Describe the field work;

viii) Use cost effective resources for learning and teaching climatology and soil science.

Module 4: Geography of Rwanda

Indicative content

This module aims at providing deep knowledge and understanding of physical aspects of Rwanda such as geological background, rocks, topography and landforms, climate, drainage, soils, and vegetation. It also focuses on the study of population, natural resources, the sectors of activities (primary, secondary and tertiary including agriculture, industry and mining, transport and communication, tourism, and the international trade, the consumption of goods and services and their spatial dimensions and variations. The module provides enough information on regional integration and international cooperation of Rwanda with other countries. It may have a look at the hindrance of Rwandan development and future perspectives of the country.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the physical aspects of Rwanda including geological background, rocks, topography and landforms, climate, drainage, soils; and vegetation;

ii) Identify the natural resources available in Rwanda and discuss their economic importance to the country;

iii) Describe Rwandan population and the techniques of measuring the demographic processes in Rwanda;

iv) Describe the main types of economic activities and their impact on the development of a country;

v) Analyze the existing interaction between different physical, human and economic aspects of Rwanda;

vi) Show the importance of political integration from economic/trade integration of Rwanda;

vii) Apply cost effective resources for learning and teaching geography of Rwanda.

Module 5: Geography of Continents

Indicative content

This module aims at giving students in-depth knowledge of the seven continents of the world that are Africa, Asia, Oceania, North America, South America, Europe, and Antarctica. For each continent, it explores the physical, human, and economic aspects, and regional and international integrations of different countries within a specific continent.

Learning outcomes

By the end of this module, students should be able to:

i) Use the world map to describe the seven continents of the world and their countries;

ii) Analyze physical and human characteristics of the world continents;

iii) Identify the particularities of each continent compared to the others;

iv) Analyze the relationship and the cooperation between the continents;

v) Explain the process of settlement and population characteristics of the world continents;

vi) Explain the success factors of specific continents and causes of drawbacks of others;

vii) Apply educational skills in teaching and learning processes of Geography of continents;

Module 6: Environmental Geography

Indicative content

This module aims at providing to the students' deep knowledge and understanding of the main components of the environment, ecosystems, biomes of the world and their relationship. It helps the learners to understand biogeochemical cycles, problems of environmental degradation (pollution, climate change, ozone depletion, deforestation, desertification, hazardous wastes, natural and human made disasters) and best ways of addressing them. The module also deals with water resources and integrated water resource management (IWRM); environmental preservation for sustainable development; environmental education as well as environmental policies and guidelines.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the environment, ecosystems and biomes;

ii) Identify the main components of the environment and their relationships;

iii) Explain the main causes and consequences of environmental degradation resulting from pollution, climate change, deforestation, desertification, hazardous wastes, natural and human activities driven disasters) and suggest the best ways of addressing them;

iv) Suggest the best practices for environmental protection and conservation for sustainable development;

v) Analyze critically various policies, strategies and international conventions of environmental conservation and their implementation;

vi) Apply the cost-effective materials in teaching environmental geography.

Module 7: Applied Geography

Indicative content

This module includes climatology in which the students will study the primary (general circulation: tropical midi-latitude and polar circulation), secondary (monsoon winds) and tertiary (periodical and non-periodical winds) atmospheric circulation, El Nino and La Nina, Jet Stream, air masses, frontogenesis and types of fronts and classification of climates as well as Koppen classification. The second part deals with Geomorphology in which the focus will be made mainly on the influence (impacts) of the structure on the types of relief (landforms), in aclinal and monocline structure, in folded structure, in faulted structures, in crystalline

rocks and in volcanic region. It will put emphasis on the relationship between the hydrography and the geological/morphological structure. In this module the topics like limestone features (karst topography), morpho-climatic systems (regions), glacial, periglacial, desert, intertropical & tropical and coastal landforms will be covered. The hydrology will be also studied in this module with focus on main sources of groundwater (rivers, lakes, seas and oceans), water budget/water balance and statistical analysis of different sources of water.

Learning outcomes

By the end of this module, students should be able to:

i) Explain primary, secondary and tertiary atmospheric circulation;

ii) Describe El Nino and La Nina, Jet Stream, air masses, frontogenesis and types of fronts;

iii) Classify different types of climate;

iv) Locate and describe landforms based on their climatic conditions;

v) Explain different types of relief (landforms) which can be seen in aclinal and monocline structure, in folded structure, in faulted structures, in crystalline rocks and in volcanic region;

vi) Analyze the main sources of water;

vii) Calculate water budget of selected area and make statistical analysis/estimation of different water sources.

viii) Apply appropriate educational methods and techniques as well as teaching resources components of climatology, geomorphology and hydrology.

Module 8: Cartography and photo interpretation

Indicative content

This module helps the students to have basic knowledge of concepts and principles of cartography, map symbols, geographic coordinates, projection systems, and mapping including reading, analysis, interpreting a map and using different elements in making a map. It provides the techniques and methods to identify and interpret physical and human features on a photograph and convert a photograph into a map.

Learning outcomes

By the end of this module, students should be able to:

i) Apply cartography principles in preparation, interpretation and analysis of maps;

ii) Differentiate mapping and aerial photography interpretation;

iii) Read, analyze and interpret an aerial photographs;

iv) Display various information from a map and an aerial photographs;

v) Visualize on a map the physical and human features extracted from an aerial photograph.

Module 9: GIS and remote sensing

Indicative content

This module aims at providing to the students' basic knowledge of key concepts and principles of Remote Sensing, characteristics of aerial photographs, taking aerial photographs, emulsions and filters, geometric properties of aerial photographs, stereoscopy, and interpretation of features from aerial photographs, characteristics of remote sensing, thermal infrared and RADAR imagery, Earth resource monitoring satellites and Remote sensing application. It also provides to the students' basic principles and applications of GIS including ArcMap menus, working with ArcMap (shapefiles, datasets, layers), map projection and coordinate system, map data and layout view and tools, editing and graphic map elements.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the key concepts and principles of Remote Sensing and GIS;

ii) Prepare a digital map using appropriate software;

iii) Analyze digital map and satellite images;

iv) Extract various maps from vector data;

v) Display various information from satellite images;

vi) Visualize through GIS and satellite images, the spatial distribution of natural and human features.

vii) Apply appropriate educational methods and techniques to teach GIS and Remote sensing.

Module 10: Rural Geography

Indicative content

This module focuses on characteristics of rural areas, rural problems in developing and developed countries. It deals with the rural development models and the role of rural activities in the process of development with case studies of selected developing and developed countries. This module also focuses on the origin, types, characteristics, factors, advantages, and disadvantages of rural settlements. Furthermore, it analyzes the fundamental principles of rural development from the case studies of some rural areas of the world with a particular focus on Rwanda.

Learning outcomes

By the end of this module, students should be able to:

i) Identify characteristics of rural areas;

ii) Describe different types of rural settlements;

iii) Identify the current challenges that affect the global rural areas especially in developing countries;

iv) Describe the process of rural development;

v) Explain the implementation of rural plans for development;

vi) Analyze the extent of poverty in Rwanda and identify and describe priority areas for poverty reduction;

vii) Apply acquired knowledge to address the issues hindering the rural development

viii) Apply appropriate educational methods and techniques as well as teaching resources components to teach rural geography.

Module 11: Urban Geography

Indicative content

The module helps students to grasp the importance of urban environments, urbanization trends and problems in both developed and developing countries. The module focuses on the process of urbanization, and development of urban settlements and urban models. It also deals with major problems of urban centers and their solutions. It presents economic activities and relationships between urban and peri-urban areas. A special emphasis is put on urban planning, sustainable cities and neighborhoods, urbanization of Rwanda and cities system and transformation.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the process of urbanization development;

ii) Describe the process of urbanization in developed and developing worlds;

iii) Discuss for the growth and distribution of the main urban centers in the world;

iv) Assess the challenges of urbanization in different parts of the world and apply that competence to the context of Rwanda and suggest the future positive perspective;

v) Explain the models of urban development in urban planning;

vi) Analyze from the case study of Kigali the contribution of the cities to the development of a country and suggest the strategies to make them a sustainable city;

vii) Apply appropriate educational methods and techniques as well as teaching resources to teach urban geography.

2.7.7 History modules

Brief description and aims

This programme aims at equipping students with competences of history while providing a critical understanding of social, economic and political aspects of different societies. History modules cover different contents such as exciting historical periods (Antiquity, Middle Ages, Modern Times and Contemporary history). History of different places including Rwanda, Africa, Asia and Europe will be analysed. Student teachers will be equipped with knowledge and skills which will help them to effectively teach history in secondary schools.

Learning outcomes

By the end of the learning experience, the students should be able to*:*

i) Explain a wide range of historical topics related to different periods and places;
ii) Apply internal and external criticism to primary and secondary sources;
iii) Collect evidences to write a historical piece;
iv) Propose strategies for fighting against all forms of discrimination and genocide denial;
v) Present historical information in a variety of formats to various audiences;
vi) Apply different strategies for effectively teaching history in secondary schools.

Table 26: **Distribution of History modules**

S/N	Module	Year of study	Semester	Credits
1	Introduction to History	1	1	15
2	Ancient History of Rwanda	1	1	10
3	History of Africa	1	2	15
4	Panorama of World History I	1	2	10
5	Contemporary History of Rwanda	2	1	10
6	Panorama of World History II	2	1	10
7	Great World Wars and Revolutions	2	1	10
8	Socio-Economic Issues in the History of Rwanda	2	2	10
9	History of Western and African Great Lakes Regions	2	2	10
10	Prejudice and Genocides	3	1	10
11	Issues in the History of International Relations	3	1	10
Total credits				**120**

Module1: Introduction to History

Indicative content

This module aims at helping the students to explore a wide range of key historical concepts, topics, periods, and places. These include for instance first and second order concepts.

This module also focuses on historical sources (oral sources, written sources, electronic sources, archaeological sources). The importance of auxiliary science of history (sociology,

geography, linguistics, paleography, epigraphy, numismatics, and archaeology) is discussed. Subfields of history are underlined (social history, economic history, political history, environmental history, gender history, etc.).

The module also makes an overview of main historical periods. It finds out what it means to be a historian. It analyzes theories (Great God Theory, Great Man Theory, Great People Theory, etc.) and methods in the study of history. Finally, the module will equip students with skills to collect primary and secondary sources, critical use of evidence and writing a historical piece using evidence.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Discuss the importance of history in human life;

ii) Differentiate first order from second order concepts in history;

iii) Differentiate various sources of historical information;

iv) Compare different theories of history;

v) Describe the advantages and disadvantages of various historical methods;

vi) Apply internal and external criticism on collected/provided primary and secondary sources;

vii) Present historical information to different audiences.

Module2: Ancient history of Rwanda

Indicative content

The module aims at equipping students with knowledge and skills of ancient history of Rwanda. It focuses on the importance of different types of sources of the history of Rwanda (oral, non-written, written and audio-visual sources) the problems of Rwandan historiography, prehistoric industries in Rwanda, the settlement of the population in Rwanda, origin and expansion of Rwanda, civilization of Ancient Rwanda (political, economic, social, religious and artistic organization).

Learning outcomes

By the end of this module, the students should be able to*:*

i) Explain the role of different types of sources of the history of Rwanda (*ubucurabwenge, ubwiru,* war poems, songs, onomastic, palynology, archaeological sources, etc.) and their historical value;

ii) Use prehistoric industries of the history of Rwanda to deconstruct prejudices related to the settlement of the population in Rwanda;

iii) Explain the achievements of Rwandan kings in the expansion of Rwanda;

iv) Analyze different components of Rwandan traditional civilization;

v) Present historical information on different topics of ancient history of Rwanda in different formats to diverse audiences;

vi) Discuss controversial topics that can affect teaching and learning the history of Rwanda.

Module 3: History of Africa

Indicative content

This module focuses on History Africa from the beginning up to now. It comprises the following aspects of the history of Africa: the sources used to write the history of Africa, the prehistory, the Mediterranean Africa history before the coming of Islam, the empires of the Western Africa, the main kingdoms of central, eastern and southern Africa, the relations between Europe and Africa between 1500 and 1800, African exploration by Europeans, Africans' reactions to European presence, European domination of Africa including causes, colonial systems, decolonization process, and post-colonial period challenges and opportunities.

Learning outcomes

By the end of the learning experience, the students should be able to*:*

i) Describe the sources of pre-colonial African history and their value;

ii) Discuss the contribution of Muslim civilisation on African continent;

iii) Use evidence from the role played by main African empires/kingdoms in Africa and their relations with other parts of the world to deconstruct prejudices on pre-colonial Africa;

iv) Analyze the impact of European presence and Islam on African continent;

v) Assess challenges and opportunities of post-colonial Africa;

vi) Present historical information on pre-colonial Africa in a variety of formats to various audiences;

vii) Describe how sources of African history can be used to teach history.

Module 4: Panorama of World History I

Indicative content

The module aims at equipping students with knowledge and skills related to panorama of World history I. It emphasizes on Ancient Mediterranean civilizations (Mesopotamia, Egypt, Hebrew, Greece, the Roman Empire, Christian and Islamic religions); Asian civilizations (Persia, China, India and Japan), Pre-Columbian civilizations (Maya, Aztecs, Incas); their expansion and impact on the world.

Learning outcomes

By the end of the learning experience, the students should be able to*:*

i) Describe the Mediterranean, Asian and Pre-Columbian civilizations to intellectual, artistic, political, social and cultural change on human society;

ii) Conduct a defined documentary research activity on ancient history;

iii) Apply historical methods to analyze documents related to ancient history;

iv) Present historical information on ancient history in a variety of formats to various audiences.

Module 5: Contemporary history of Rwanda

Indicative content

The module aims at equipping students with knowledge and skills pertaining to the contemporary history of Rwanda. It focuses on Rwanda from the mid-19th century up to 1994. It deals with European exploration of Rwanda, reactions of Rwandans to European presence, German rule in Rwanda (1897-1916), establishment of missionaries in Rwanda and its impact on Rwandan society, the causes and effects of the First and Second World Wars on Rwanda, Belgian administration in Rwanda, the changes of the 1950s and early 1960s; Post-colonial Rwanda: First republic, Second republic (achievements and challenges), the Liberation War and post-genocide transformation.

Learning outcomes

By the end of this module, students should be able to*:*

i) Describe the causes of European presence in Rwanda (missionaries, colonial masters);

ii) Analyze the evolution and impacts of colonial rule on Rwandan society;

iii) Use data from different sources to discuss the social, economic and political transformation of post-colonial Rwanda;

iv) Present historical information on contemporary history of Rwanda in a variety of formats to various audiences.

Module 6: Panorama of World history II

Indicative content

The module intends to equip students with knowledge and skills related to the panorama of World history II and how ancient arts-based forms can be used to teach history. It concentrates on the Middle Ages (early, high and Middle Ages) by describing Europe between the fall of Rome and the beginning of the Renaissance. It also deals with Modern Times by discussing philosophical and political thoughts that shaped modern times (humanism, rationalism, Marxism, liberalism, neoliberalism, democracy, etc.). The module also discusses the protestant and catholic reformation, the contacts of Europe and the rest of the world, the age of Enlightenment).

Learning outcomes

By the end of this module, students should be able to*:*

i) Analyze the main events and changes of the medieval and modern societies;

ii) Assess the political, economic and intellectual developments in the medieval and modern periods;

iii) Present historical texts on medieval and modern history in a variety of formats to various audiences;

iv) Apply arts-based forms to teach medieval history.

Module 7: Great World Revolutions and Wars

Indicative content

The module aims at making students acquainted with great world contemporary events that occurred from the first half of 18th century. It includes great world revolutions (Industrial, American, French, Russian revolutions), economic crises, totalitarian regimes and the two world wars. It will help students to understand the interrelation and interdependence of those great world historical events from great revolutions to the end of the Second World War.

Learning outcomes

By the end of this module, students should be able to*:*

i) Analyze the causes, course and effects of western revolutions and the two world wars on human society;

ii) Comment on numerical data related to western revolutions, economic crisis and the two world wars;

iii) Discuss the rise, development and impact of dictatorial regimes on human society;

iv) Present works related to great wars and revolutions in a variety of formats to various audiences.

Module 8: Issues in Socio-economic History of Rwanda

Indicative content

This module is intended to enable students to get competences about important issues in *Socio-Economic History of Rwanda*. Thus, it aims at analyzing the process and importance of barter trade, handcrafts, the role of agriculture and animal raising in traditional Rwanda. The module also discusses historical evolution of socio-economic institutions namely *ubuhake, uburetwa* and *ubukonde* and their impacts on Rwandan society. The role of colonial administration, first and second republics, and other actors such as Churches, NGOs in socio-economic transformations will be discussed. The post-genocide changes will also be part of this module.

Learning outcomes

By the end of the module students should be able to*:*

i) Describe socio-economic activities and institutions in ancient Rwanda;

ii) Use knowledge on socio-economic institutions in Rwanda to deconstruct prejudices on social identities;

iii) Discuss the contribution of German, Belgian and the two first republics in socio-economic evolution of Rwanda;

iv) Discuss the role of Muslim religion and Christian Churches in socio-economic evolution of Rwanda;

v) Use data from recent Rwandan history to explain the post-genocide socio-economic transformation;

vi) Propose strategies to address socio-economic challenges of Rwandan society;

vii) Present historical texts on socio-economic issues in the history of Rwanda in a variety of formats including ICT to various audiences.

Module 9: History of Western and African Great Lakes regions

Indicative content

This module is intended to enable students to get knowledge of important issues in history of Western and African Great Lakes regions. The module comprises the following regional aspects: physical and human environment of Western and African Great Lakes regions, traditional organization of empires and kingdoms in West Africa and in the African Great Lakes region, the colonial penetration, reactions to European presence, systems of colonial domination**,** the struggle for independence, regional current problems (democratization, underdevelopment, conflicts, and marginalization) and solutions including regional integration.

Learning outcomes

By the end of the module students should be able to*:*

i) Explain the main political, economic, social and cultural changes of the Western and African Great Lakes regions, from the beginning up to 1960s;

ii) Analyze source of conflicts in African Great Lakes regions and possible solutions;

iii) Discuss other Western and African Great Lakes regions' challenges after the independences and current regional integration;

iv) Present historical information on the history of Western and African Great Lakes regions in a variety of formats including use of ICT to various audiences.

Module 10: Prejudice and Genocides

Indicative content

This module has two main components namely a deep understanding of prejudice and the twentieth century genocides. Firstly, it aims at describing human evolution, eugenics, social Darwinism and genetics, emergence of racial attitudes, imperial and colonial discourse theory, women's role in history. Secondly, a particular emphasis will be put on the Herero genocide, the Armenian genocide, the Holocaust, the Cambodian genocide and the 1994 genocide against the Tutsi.

Learning Outcomes

By the end of the module students should be able to*:*

i) Explain human evolution and emergence of racial attitudes;

ii) Describe certain types of prejudice in different societies;

iii) Compare genocide to other crimes against humanity;

iv) Describe different steps, causes and consequences of genocide;

v) Compare twentieth genocides;

vi) Present strategies to fight against prejudice and genocide denial;

vii) Explain how genocides can be taught as sensitive topics.

Module11: Issues in history of international relations

Indicative content

This module is intended to provide students with a deep understanding of major issues that have influenced relations between countries from the Westphalia Treaty up to the Second World War (Vienna Congress, Bismarck foreign policy, formation of blocs and their effects on international relations). The module also analyzes the history of international institutions (Eg: European Union, United Nations Organisation, African Union, NATO, Non-Aligned Movement, BRICS, G20, GreenPeace International or Red Cross), the Cold War, North-South relations, environmental history and sustainable development.

Learning Outcomes

By the end of this module, students will be able to*:*

i) Explain factors influencing the history of international relations;

ii) Explore main issues in the history of international relations from Westphalia Treaty up to the Second World War;

iii) Discuss the role of international institutions in the history of international relations;

iv) Describe the Cold War history;

v) Assess North-South relations and gender movements;

vi) Present the main themes of environmental history and sustainable development.

2.7.8 Economics modules

Brief description and aims

An Advanced Diploma Programme of Education in Economics is designed to provide students with a comprehensive understanding of economic principles, theories, and their practical applications. The program typically aims to equip students with the knowledge and skills to analyze economic phenomena, make informed decisions, and gain knowledge of economic policy discussions.

Learning outcomes

By the end of the program, the learner shall be able to*:*

i) Explain the concepts, principles, and theories of micro and macroeconomics;

ii) Evaluate the impact of economic policies on various sectors of the economy;

iii) Apply computer skills in macro and microeconomic principles;

iv) Communicate economic concepts, analysis, and findings though written reports, presentations, and discussions.

Table 27: **Distribution of Economics modules**

S/N	Module	Year of study	Semester	Credits
1	Foundations of Economics	1	1	10
2	Mathematics for Economists	1	1	15
3	Introduction to Public Finance	1	2	10
4	Statistics for Economists	1	2	15
5	Principles of Microeconomics I	2	3	10
6	Principles of Macroeconomics I	2	3	10
7	Fundamentals of Econometrics			10
8	Current Issues in Economics (*Urban, Environment, Health, Circular)*	2	4	10
9	Elements of Financial System	2	4	10
10	Principles of Microeconomics II	3	1	10
11	Principles of Macroeconomics II	3	1	10
Total Credits				**120**

Module 1: Foundations of Economics

Indicative content

The module aims at equipping knowledge and skills related to foundations of economics. It covers key aspects in fundamentals of Economics aspects such as the pricing system, national and global issues in the economy, game theory, marginal analysis and a model of analysis, demand, supply and elasticity, government intervention in the market, GDP, unemployment and inflation, production and costs, the exchange rate and international trade, market structure, institutions and modern economic growth, environment and the industrial revolution, historical Perspectives on the COVID-19 crisis and directed technological change and evolution of Rwandan economy

Learning Outcomes

By the end of the module, Explain the key concepts in economics;

i) Describe economic trends, institutions, and policies, especially in the context of business and industry-related problems and issues;

ii) Apply economic principles and analysis to everyday problems in real world situations.

iii) Communicate and convey economic concepts, theories, and analysis to different audiences.

Module2: Mathematics for Economists

Indicative content

The module aims at equipping students with basic mathematical knowledge and skills required for solving problems encountered in economics. It covers mathematical foundations (sets, functions and algebra) linear equations simulation, simultaneous linear systems (analysis and applications), quadratic functions (analysis and applications), non-linear functions (analysis, applications and simulation), univariate calculus (analysis and applications), multivariate calculus (analysis and application), unconstrained optimization (analysis and applications), constrained optimization (analysis), constrained optimization (applications).

Learning Outcomes

By the end of the module, students should be able to*:*

i) Describe the importance of mathematics for economists

ii) Apply appropriate techniques to solve problems with calculus and linear algebra

iii) Interpret model economic questions as mathematical problems

iv) Represent economics models using matrix algebra and calculus.

v) Generate the comparative statics from optimization problems, using various techniques

Module 3: Introduction to Public Finance

Indicative content

The module will cover key aspects of introduction to public finance such as: introduction to public finance and private finance; size and structure of the public sector in Rwanda., government revenues, public spending/expenditure and borrowing (internal and external), deficit financing, budget cycle and politics of the budgetary process, planning and budgeting in the public sector; budgeting and performance evaluation in the public sector organizations; techniques of budgetary and fiscal analysis; capital budgeting and debt management; public investment: cost-benefit analysis, qualitative CBA, effectiveness analysis, multi goal analysis; public – private partnership: modalities, financing, risk allocation and negotiation; relationship between the economy and the public budgeting;

Learning Outcomes

By the end of the module, students should be able to*:*

i) Explain how public budgeting fits into the macroeconomic framework;

ii) Explain costs and different ways of measuring them and how costs are used in public budgets;

iii) Analyze the impact of political, economic, and organizational factors on budgetary decision-making.;

iv) Establish the relationship between the global economy, the financial market, and the government fiscal policies;

v) Communicate public finance concepts, analyses, and policy recommendations to policy makers, other stakeholders, and the general public.

Module 4: Statistics for Economists

Indicative content

The module aims at equipping students with competencies in applying statistics in economics. Topics in this module include introduction to descriptive statistics, elements of probability, elements of statistical inference, random variables. univariate model, multiple expectation, special distributions, distribution of sampling statistics, normal, binomial and Poisson distributions, correlation and regression analysis, estimation theory, statistical hypothesis using t, f and chi-square. Others are elementary sampling theory and design of experiments, non-parametric methods, introduction to the central limit theorem (CLT) and the law of large numbers.

Learning Outcomes

By the end of the module, students should be able to*:*

i) Define non-parametric methods, elementary sampling theory and design of experiment.

ii) Recall an introductory manner central limit theorem and the law of large numbers;

iii) Apply correlation and regression analysis models to data;

iv) Solve economic problems requiring statistical models.

Module5: Principles of Microeconomics I

Indicative content

The module aims at introducing students to principles of microeconomics. It focuses but not limited to problems of scarcity and choice, demand, elasticity of demand supply and elasticity of supply, determination of equilibrium price and quantity, some applications of demand & supply, theory of consumer's demand, indifference curve analysis.

Learning Outcomes

By the end of the module, students should be able to*:*

i) Explain the role and limitations of price mechanism

ii) Explain the concept of opportunity cost and its different types

iii) Analyze the central problems facing the economies of the world

iv) Draw and describe various shapes of Production Possibility Curves (PPC)

Module6: Principles of Macroeconomics I

Indicative content

This module introduces students to economic analysis of aggregate employment, income, and prices. Topics include major schools of economic thought; aggregate supply and demand; economic measures, fluctuations, and growth; money and banking; stabilization techniques; and international trade. Upon completion, students should be able to evaluate national economic components, conditions, and alternatives for achieving socio economic goals, the circular flow of income and expenditures, fiscal and monetary policy.

Learning Outcomes

By the end of the module, students should be able to*:*

i) Explain the basic economic decisions that underlie the economic process;

ii) Describe the concepts of scarcity, choice and opportunity cost and applies these concepts to the analysis of the workings of a market economy;

iii) Identify the process of how the nation's output of goods and services is measured through the national income and product accounts;

iv) Justify the importance of interrelationships among consumers, government, business, and the rest of the macro economy;

v) Evaluate discretionary fiscal policy and automatic stabilizers in stabilizing employment, income.

Module7: Fundamentals of Econometrics

Indicative content

The module aims at equipping students with the analytical tools to carry out applied econometric work and to explore more advanced areas of econometric theory at basic stages of economics. It provides both an analytical and practical introduction to econometric theory, econometrics analysis, single-equation (regression models), normal linear regression model and practical aspects of statistics testing, two-variable regression, model: the problem of estimation and two-variable regression analysis.,

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the importance of econometrics for economics analysis and a production of possibility frontier diagrams.

ii) Demonstrate an understanding of the use of econometrics in solving economic problems.

iii) Apply econometrics analysis, single-equation (regression models), normal linear regression model and practical aspects of statistics testing, two-variable regression, and model: the problem of estimation and two-variable regression analysis.

Module8: Current Issues in Economics

Indicative content

This module equips students with knowledge and skills in concepts of environmental economics, urban and circular economy through an implementation of a variety of intermediate-level concepts and frameworks. It covers topics of circular, urban, health and environmental economics such as the fundamentals of environmental economics, institutional framework for a circular economy, green startup, ecosystems, and opportunities on global and national level; green business models, environmental impact assessment, theory of households, firms, and location decisions across cities

Learning Outcomes

By the end of the module, students should be able to*:*

i) Describe the current issues in economics

ii) Analyze environmental problems of different levels and suggest appropriate solutions;

iii) Apply the tools of environmental economics to real-world problems in an advanced fashion;

iv) Apply solutions using concepts of circular economy.

v) Engage in constructive debates over key concepts and models in Environmental Economics and circular Economy

Module 9: Elements of Financial System

Indicative content

This module aims at introducing students to the form and function of the financial system and the manner in which various managers use the markets to set and accomplish strategic corporate objectives. It covers introduction to capital market and money markets, central banks and monetary policy, interest rates, stock markets, financial services, and economy, prudential and non-prudential measures in bank supervision, valuation of the financial instruments, and Rwanda financial system.

Learning Outcomes

By the end of the module, students should be able to*:*

i) Describe what a financial system is and does, the distinct functions of each component, important financial instruments and the economic principles underlying their use;

ii) Explain the relationship among assets, agents, and institutions;

iii) Solve simple problems using quantitative or graphical tools;

iv) Appreciate country differences in a world of interdependence and rapid change;

v) Critically evaluate the institutions and instruments of modern financial activity.

Module 10: Principles of Microeconomics II

Indicative content

This module aims at introducing students to economic analysis of individual, business, and industry choices in the market economy. Topics include the price mechanism, supply and demand, optimizing economic behavior, costs and revenue, market structures, factor markets, income distribution, market failure, and government intervention. Upon completion, students should be able to identify and evaluate consumer and business alternatives in order to achieve economic objectives efficiently.

Learning Outcomes

By the end of the module, students should be able to*:*

i) Explain the role of prices in allocating scarce resources in market economies and explain the consequences of price controls.

ii) Describe the principles of microeconomics

iii) Analyze various government macroeconomic policies aimed at identifying and solving inefficiencies.

Module11: Principles of Macroeconomics II

Indicative content

This module introduces students to economic analysis of aggregate employment, income, and prices. Topics include major schools of economic thought; aggregate supply and demand; economic measures, fluctuations, and growth; money and banking; stabilization techniques; and international trade. The module covers the following topics: Economics: what it's all about, Production possibilities, supply and demand analysis, gross domestic product and the performance of the national economy, Business cycles, unemployment, and economic growth, aggregate purchases and macroeconomic equilibrium and the economics of foreign exchange and the balance of international trade

Learning Outcomes

By the end of the module, students should be able to*:*

i) Describe the basic economic decisions that underlie the economic process;

ii) Describe the concepts of scarcity, choice and opportunity cost and apply these concepts to the analysis of the workings of a market economy;

iii) Identify the process of how the nation's output of goods and services is measured through the national income and product accounts

iv) Critically clearly illustrate the specific roles and functions of monetary and fiscal policy in the economy.

v) Evaluate national economic components, conditions, and alternatives for achieving socio-economic goals.

2.7.9 ENTREPRENEURSHIP MODULES

Brief description and aims

The main objective of the Advanced Diploma in Entrepreneurship is to equip learners with knowledge and intensive professional skills in entrepreneurship subjects. At the completion of the program, the learner will be equipped with knowledge and skills that will enable him/her to become an entrepreneur or teach up to a certain level of secondary education. Modules are designed in such a way that an emphasis shall be given to practice. The program covers subjects in entrepreneurship, business communication, finance and accounting, leadership and management, business law and taxation, marketing and e-business, as well as networking and negotiation. The learner is given advanced skills in innovation and finance as compared to a diploma in entrepreneurship.

Learning outcomes

By the end of the programme, student will be able to:

i) Explain the methods of financing new ventures, risk management, marketing and sales and leadership,

ii) Show an understanding of legal and taxation framework for business,

iii) Show an entrepreneurial mindset characterized by creativity, innovation, risk-taking to identify and pursue opportunities,

iv) Develop business plans including market analysis, financial projections, strategic planning in launching and growing new businesses,

v) Evaluate business opportunities, conduct market research, assess market demand, and determine viability of entrepreneurial ventures,

vi) Communication with investors business ideas.

Table 28.: **Entrepreneurship modules distribution**

S/N	Modules	Year of study	Semester	Credits
1	Fundamentals of Entrepreneurship	1	1	15
2	Introduction to Creativity and Innovations	1	1	10
3	Accounting for Entrepreneurs	1	2	15
4	Marketing and E-Business	1	2	10
5	Business Communication	2	1	10
6	Leadership and Management	2	1	10
7	Business Law and Taxation	2	1	10
8	New Venture Creation	2	2	10
9	Entrepreneurial Networking and Negotiation Skills	2	2	10
10	Business Planning and Development	3	1	10
11	Financial Management	3	1	10
Total Credits				**120**

Module 1: Fundamentals of entrepreneurship

Indicative Content

The module of fundamentals of entrepreneurship introduces students to the world of entrepreneurship in elucidating relative concepts, discussing the key features of entrepreneurs as well as techniques. It covers units including introduction to entrepreneurship, entrepreneurial traits and characteristics, entrepreneurship tools and techniques and entrepreneurship mindset.

Learning Outcomes

By the end of this module, students should be able to:

i) Describe what it takes to be a successful entrepreneur,

ii) Evaluate major challenges entrepreneurs face and how entrepreneurial opportunities are exploited in different markets,

iii) Apply some appropriate tools and techniques required to create viable and sustainable businesses,

iv) Communicate ideas and opinions for entrepreneurial success in different contexts.

Module 2: Introduction to creativity and Innovation in Organizations

Indicative content

This module aims at clarifying the concepts relative to creativity. Further, it offers learners a practical toolkit to both understand and more reliably harness innovation in organizations and personal projects. The course itself also has a focus on these tools, with a range of modern materials, delivering a fun and memorable experience. The module will cover several topics including introduction to creativity, introduction to Innovation, tools and techniques of innovation and creativity, product development and innovation and the psychology of creativity and innovation.

Learning Outcomes

By the end of this module, students should be able to*:*

i) Describe the concepts of entrepreneurship and techniques of creativity and innovation

ii) Describe current issues in creativity and innovation.

iii) Apply, creative and innovative solutions, both independently and cooperatively, to current and future problems

Module 3: Accounting for entrepreneurs

Indicative content

The module is designed to equip students with a comprehensive understanding of accounting principles and practices tailored specifically for teachers of entrepreneurship. Students will explore various aspects of accounting and reporting, costing, focusing on the unique needs and challenges faced by entrepreneurs in managing their own businesses. The module covers several topics including accounting in entrepreneurship, key accounting concepts, bookkeeping basics, recording transactions, financial statements preparation as well as cost accounting basics.

Learning outcomes

By the end of this module, students should be able to:

i) Explain fundamental accounting and costing principles and practices and their application in the context of entrepreneurial ventures,

ii) Maintain accurate financial records, create financial statements and analyze financial data to support decision making for entrepreneurs.

iii) Explain various accounting techniques applied in journalizing transactions, preparation of income statement, balance sheet, bank reconciliation statement and control accounts;

iv) Use accounting data for financial performance appraisal in any business.

Module 4: Marketing and E-Business

Indicative content

The module intends to develop and deepen the knowledge of the entrepreneurial marketing concept and its implementation, particularly as far as start-ups are concerned. It focuses on the management of marketing mix and how to prepare a marketing plan, conduct market research so as to position the business. It covers several topics including introduction to marketing, digitalization of commerce, managing online business transactions, as well as effective sales and market negotiations.

Learning outcomes

By the end of this module, students should be able to:

i) Explain fundamental marketing concepts and their significance in entrepreneurship.
ii) Analyze consumer behavior;
iii) Conduct market research to identify opportunities and target markets for entrepreneurial ventures.
iv) Manage product offerings, including branding and value proposition creation.
v) Implement digital marketing strategies, including content marketing, and social media marketing.

Module 5: Business Communication

Indicative content

This module will equip students with clear and effective business communication skills. It will introduce them to concepts of business communication, different types of communication, and introduce them to various forms of communication indispensable to communicate internally and externally to achieve business goals. It will also equip students with skills of designing and writing business documents and reports.

Learning outcomes

By the end of this module, students should be able to:

i) Use a range of appropriate methods and effective channels in business communication;
ii) Apply appropriate techniques in transferring information within an organization;
iii) Convey complex business ideas in a well-structured and coherent form;
iv) Use both oral, written and computer communication skills in an organization.

Module 6: Leadership and management

Indicative content

This module offers the students an opportunity to gain an enhanced understanding of leadership applications in the business context with required managerial skills. It aims at

developing knowledge and understanding of both theoretical and practical managerial systems and its applications for the success of any business institution. The study area would include evolution of management thoughts, management styles, analysis and design, leadership theories and models necessary for a successful leader.

Learning outcomes

By the end of this module, students should be able to:

i) Design management procedures to choose the leadership style suitable to the context;
ii) Critically assess existing effectiveness of leadership and management in organization;
iii) Demonstrate the role of management and leadership in today's business environment;
iv) Synthesize the leadership philosophy and models so as to adapt them to the organizational conditions.

Module 7: Business Law and Taxation

Indicative content

The module aims at introducing students to the legal environment related to the negotiation of business with third parties (such as creditors, debtors, agents or suppliers), highlighting the implications of legal rules in the management of business and thus allowing more conscious and informed decisions. It also introduces students to the principles of tax law in Rwanda as applied to different types of taxes. The module covers topics including corporate and business law and taxation.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the principles and rules relating to business law in general and in Rwanda particularly;
ii) Apply basic legal knowledge to business transactions;
iii) Communicate effectively using standard business and legal terminology;
iv) Appreciate the effect of legal and ethical framework on financial processes, reports and systems recognizing the need to seek further specialist legal advice.

Module 8: New Venture Creation

Indicative content

This module provides hands-on experience in entrepreneurship and equips learners with critical thinking, specific methods to access and understand the industry, customers, and competitors, preparing them for new venture creation. The module also introduces the students on how to translate business insights into a winning venture idea, a business model, and a set of distinctive new products and services. In addition, the module gives students a wide range of techniques to spot business opportunities that could later be transformed into business ventures. The module covers topics such as entrepreneurial thinking, opportunity

spotting and evaluation, business model and lean startup, industry and market research, strategy and business models.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the strategies and techniques that are appropriate to the creation of new ventures;

ii) Analyze the acquired knowledge about new ventures creation and customize this knowledge to the context;

iii) Apply the methods and techniques for the creation of new business ventures;

iv) Communicate with the team of experts to fine-tune business venture ideas.

Module 9: Entrepreneurial Networking and Networking

Indicative content

This module provides entrepreneurs with competences, methodologies and tools to support them in understanding the importance of personal relationships, in engaging trainees, in creating new business opportunities (developing and maintaining new market and customer opportunities). It also helps them to exploit techniques, tools and events to increase the effectiveness of networking activities and business relationship management. The module covers following topics: business communication, relationships to different types of counterparts, development of relationships over time, creating trust and handling conflicts in relationships, managing the company's customer and supplier portfolios, managing networks, including supplier networks, customer networks, and innovation networks, learning and competence development in and across relationships, strategy processes in business networks, digitalization in business networks.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts and approaches of establishing business relationships and networking;

ii) Apply acquired knowledge to develop strong and sustainable business relationship and networking;

iii) Establish good communication practices that are favorable to a good business relationship and networking;

iv) Promote ethical values in the business relationship and networking as an instrument of business sustainability.

Module 10: Business Planning and Development

Indicative content

This module takes the student through the process of preparing and producing a comprehensive business plan based on market research, cash flow and profit and loss

projections. The student is encouraged to utilize robust research practices and to engage with strategic critical thinking. The module will discuss, SWOT analysis, key parts of business plan, use of business plan, Relationship between business plans and strategic planning, Market opportunity and target market and Importance of a business plan for entrepreneurs and investors

Learning outcomes

By the end of this module, students should be able to:

i) Explain the purpose and importance of a business plan for entrepreneurs and investors,
ii) Describe the design and implementation of a business plan,
iii) Develop a comprehensive and convincing business plan that effectively communicates the value proposition and differentiators of the business,
iv) Use financial analysis techniques to project financial performance, evaluate profitability, and assess funding requirements,
v) Explain the legal and regulatory considerations associated with business planning and incorporate them into the planning process**.**

Module 11: Financial Management

Indicative Content

This module will provide students with an understanding of the basic principles and concepts of financial management. It will introduce students to finance functions as well as sources of finance. The module will also cover financial markets and institutions, time value of money, capital budgeting techniques, dividend theories, cost of capital and financial statement analysis.

Learning outcomes

By the end of this module, student should be able to:

i) Define financial management and related concepts,
ii) Analyze the financial environment for sound finance decisions,
iii) Use capital budgeting techniques to appraise investment projects,
iv) Apply financial ratios to analyze financial statements.

2.7.10 Imbumbanyigisho z'Ikinyarwanda

Inshamake y'inyigisho

Iyi nyigisho igamije gutegura abanyeshuri bazavamo abarimu b'Ikinyarwanda cyane cyane abo mu mashuri yisumbuye n'ay'imyuga, haba mu Rwanda ndetse no mu mahanga. Uretse kandi kwibanda ku rurimi rw'Ikinyarwanda, iyi nyigisho igamije gutegura abanyeshuri bazahabwa impamyabumenyi y'icyiciro cya kabiri cya kaminuza mu burezi (Advanced Diploma of Education), bityo ikaba igamije gucyemura ibibazo bigaragara mu myigire

n'imyigishirize y'Ikinyarwanda by'umwihariko, ndetse n'izindi ndimi muri rusange, byose bigamije kuzamura ireme ry'uburezi.

Intego z'inyigisho

Nyuma yo kurangiza amasomo akubiye muri iyi nyigisho y'Ikinyarwanda, umunyeshuri azaba ashobora kwigisha neza amasomo y'Ikinyarwanda kugeza ku rwego rw'amashuri yisumbuye, kandi azaba afite ubumenyi, ubumenyingiro, ubushobozi n'ubukesha ku rurimi rw'ikinyarwanda cyane cyane kuri izi ngingo zikurikira:

i) Umusogongero ku rurimi rw'Ikinyarwanda, iyigandimi, n'ubuvanganzo nyarwanda;
ii) Ubugeni bwo kuvuga, kumva, gusoma no kwandika mu Kinyarwanda;
iii) Iyigamvugo n'iyigamajwi by'Ikinyarwanda;
iv) Iyigantego, iyiganteruro, iyiganyito n'isesengurandimi by'Ikinyarwanda;
v) Inkuru ngufi n'inkuru ndende mu Kinyarwanda, ndetse n'ubusizi nyarwanda;
vi) Iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda;
vii) Iyigarutonde, iyigamuga n'iyandikankoranya by'Ikinyarwanda.

Imbonerahamwe ya 29: Imbata y'Imbumbanyigisho z'Ikinyarwanda

Nomero	**Imbumbanyigisho**	**Umwaka w'amasomo**	**Igihembwe**	**Igihe[2]**
1	Umusogongero ku rurimi rw'Ikinyarwanda n'iyigandimi	1	1	15
2	Umusogongero ku buvanganzo nyarwanda	1	1	10
3	Ubugeni bwo kuvuga no kwandika mu Kinyarwanda	1	2	15
4	Iyigamvugo n'iyigamajwi by'Ikinyarwanda	1	2	10
5	Iyigantego ry'Ikinyarwanda	2	1	10
6	Iyiganteruro ry'Ikinyarwanda	2	1	10
7	Ubusizi nyarwanda	2	1	10
8	Iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda	2	2	10
9	Iyiganyito n'isesengurandimi by'Ikinyarwanda	2	2	10

[2] Igihe cy'imbumbanyigisho

10	Inkuru ngufi n'inkuru ndende mu Kinyarwanda	3	1	10
11	Iyigarutonde, iyigamuga n'iyandikankoranya by'Ikinyarwanda	3	1	10
Total credits				**120**

Imbumbanyigisho ya 1: Umusogongero ku rurimi rw'Ikinyarwanda n'iyigandimi

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho ikubiyemo ubumenyi ku nshoza y'ururimi, inkomoko n'amasano ndetse n'itandukaniro by'indimi nyabantu muri rusange. Iyi mbumbanyigisho kandi ikubiyemo ubumenyi rusange ku iyigandimi, inshoza n'amuga bikoreshwa mu iyigandimi, amahame n'amahange bikoreshwa mu iyigandimi, isano n'itandukaniro biri hagati y'iyigandimi n'ibindi byerekezo by'ubuhanga bikoreshwa mu myigire, imyigishirize n'ubushakashatsi nyarurimi, ndetse n'amateka n'imiterere rusange by'ururimi rw'Ikinyarwanda.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Iyigandimi n'ibyerekezo bitandukanye byaryo;

ii) Inshoza n'amuga bikoreshwa mu iyigandimi;

iii) Amahame n'amahange bikoreshwa mu iyigandimi;

iv) Amateka n'imiterere rusange by'Ikinyarwanda.

Imbumbanyigisho ya 2: **Umusogongero ku buvanganzo nyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yibanda ku bumenyi rusange ku buvanganzo, inshoza n'amuga akoreshwa mu buvanganzo, ingeri zitandukanye z'ubuvanganzo zirimo ibyivugo, imivugo, imigani migufi n'imigani miremire, ibitekerezo byo muri rubanda, indirimbo, ibisigo, ubwiru, amazina y'inka, n'izindi. Iyi mbumbanyigisho kandi yibanda mahame n'amahange akoreshwa mu isesengura ry'ingeri zitandukanye z'ubuvanganzo, ndetse n'amateka n'imiterere y'ubuvanganzo nyarwanda by'umwihariko.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Ubuvanganzo nk'inshoza n'ikerecyezo cy'ubuhanga;

ii) Inshoza n'amuga bikoreshwa mu buvanganzo;

iii) Ingeri zitandukanye z'ubuvanganzo;

iv) Amahame n'amahange akoreshwa mu isesengura ry'ingeri zitandukanye z'ubuvanganzo;

v) Amateka n'imiterere y'ubuvanganzo nyarwanda.

Imbumbanyigisho ya 3: **Ubugeni bwo kuvuga no kwandika mu Kinyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho ifasha abanyeshuri kugira ubuhanga, ubumenyi n'ubumenyingiro mu bugeni bwo kuvuga, kwandika, kumva no gusoma Ikinyarwanda muri rusange. By'umwihariko, iyi mbumbanyigisho izibanda ku bugeni bwo kuvuga no kwandika mu Kinyarwanda, gukora icyandikwa, gukora inyandikomvugo, kuvuga mu ruhame, kuyobora inama n'ibiganiro mpaka no kuvuga mu yindi mihango ikenera gukoresha ururimi mu buryo bwihariye, gutanga no gucengeza amakuru, kubara inkuru, gukora inshamake, gutegura imbwirwaruhame n'ibindi. Ikindi, iyi mbumbanyigisho isobanura amateka n'imiterere y'amategeko n'amabwiriza agenga imyandikire y'Ikinyarwanda mu iyogabihe.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Amahame rusange ajyanye n'imyandikire y'Ikinyarwanda;

ii) Uburyo bunoze bwo kuvuga no kwandika Ikinyarwanda;

iii) Gukora icyandikwa, inyandikomvugo, imbwirwaruhame;

iv) Gutanga, gusesengura no gucengeza amakuru;

v) Kuyobora inama, ibiganiro mpaka n'iyindi mihango isaba ikoreshwa ry'Ikinyarwanda kihariye;

vi) Kuvuga mu ruhame, kubara inkuru, gukora incamake;

vii) Amateka n'imiterere y'amabwiriza y'imyandikire y'Ikinyarwanda.

***Imbumbanyigisho ya* 4**: **Iyigamvugo n'iyigamajwi by'Ikinyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho isobanura kandi ikibanda ku iyigamajwi nk'icyerekezo cy'ubuhanga kita ku majwi agize indimi nyabantu, ndetse no ku iyigamvugo nk'icyerekezo cy'ubuhanga kibanda ku gusesengura no gushyira mu byiciro amajwi akoreshwa mu rurimi rw'Ikinyarwanda. Iyi mbumbanyigisho isobanura iyigamajwi mu byiciro byaryo uko ari bitatu, ari ibyo imivugire, imyumvire n'iyakirwa by'amajwi akoreshwa mu rurimi rw'Ikinyarwanda.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza n'amateka by'iyigamvugo n'iyigamajwi;

ii) Itandukaniro n'isano biri hagati y'iyigamvugo n'iyigamajwi;

iii) Amajwi n'ibimenyetso bitandukanye bikoreshwa mu nyandiko nyemvugo n'inyandiko nyejwi by'Ikinyarwanda n'izindi ndimi Bantu;

iv) Ibice bigize amajwi akoreshwa mu Kinyarwanda n'izindi ndimi Bantu;

v) Amahame n'amahange akoreshwa mu iyigamvugo n'iyigamajwi;

vi) Amateka y'ikiremwamuntu n'imiterere y'umubiri w'umuntu n'uruhare rwabyo mu iyigamvugo n'iyigamajwi;

vii) Uburyo amajwi avugwa, yumvwa, anakirwa mu rurimi rw'Ikinyarwanda n'izindi ndimi Bantu.

Imbumbanyigisho ya 5: **Iyigantego ry'Ikinyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yerekana ubwoko bwose bw'amagambo agize ururimi rw'Ikinyarwanda n'izindi ndimi Bantu, igamije kwerekana intego zayo. Yibanda ku buryo n'ibigenderwaho mu gushyira amoko y'amagambo mu byiciro bitandukanye, ikerekana isano n'itandukaniro biri hagati y'amoko y'amagambo agize ururimi. By'umwihariko yerekana intego n'amategeko y'igenantego n'igenamajwi akoreshwa mu mazina, ibinyazina, inshinga n'itondaguranshinga ryoroheje n'iry'urusobe, haba mu Kinyarwanda ndetse no mu zindi ndimi Bantu.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Ubwoko bw'amagambo agize ururimi rw'Ikinyarwanda;

ii) Ubwoko bw'amagambo agize indimi Bantu;

iii) Imiterere y'ubwoko butandukanye bw'amagambo agize Ikinyarwanda n'izindi ndimi Bantu;

iv) Itondaguranshinga ryoroheje n'iry'urusobe mu rurimi rw'Ikinyarwanda;

v) Uburyo bwo gusesengura intego z'inshinga, amazina, ibinyazina, ntera n'andi magambo agize Ikinyarwanda n'izindi ndimi Bantu;

vi) Kwerekana, gukoresha no gusobanura amategeko y'igenamajwi n'igenantego akoreshwa mu gusesengura intego z'amagambo mu Kinyarwanda.

Imbumbanyigisho ya 6: Iyiganteruro ry'Ikinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho ikubiyemo amahame n'amahange akoreshwa mu iyiganteruro, ikanerekana isano n'itandukaniro biri hagati y'iyigantego n'iyiganteruro, by'umwihariko ikerekana amahame, amahange n'uburyo amagambo atandukanye akurikirana akabyara interuro yoroheje cyangwa interuro y'urusobe. Yerekana imimaro itandukanye amagambo agira mu nteruro, ikerekana uburyo habaho isanisha mu rurimi rw'Ikinyarwanda no mu zindi ndimi Bantu. Iyi mbumbanyigisho kandi yerekana amahame n'amahange ashingirwaho, ndetse n'uburyo bwo kwerekana ko interuro ari interuro iboneye cyangwa interuro ikocamye mu rurimi rw'Ikinyarwanda no mu zindi ndimi Bantu. Ikindi kandi iyi mbumbanyigisho yerekana ibice bitandukanye bigize interuro y'urusobe, ikerekana akamaro k'ibyungo mu nteruro y'urusobe, ndetse n'uburyo igisobanuro cy'interuro gishobora guhinduka cyangwa

kudahinduka bitewe n'umwanya ijambo runaka cyangwa igice cy'interuro kimuriwemo mu nteruro.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Amahame n'amahange atandukanye akoreshwa mu iyiganteruro;

ii) Amahame, amahange n'uburyo butandukanye bikoreshwa mu isesenguranteruro;

iii) Gusesengura ibice bigize interuro y'Ikinyarwanda n'izindi ndimi Bantu;

iv) Kwifashisha igiti mu kwerekana ibice bigize interuro hagendewe ku mahame n'amahange agezweho;

v) Ubwoko butandukanye bw'interuro mu rurimi rw'Ikinyarwanda;

vi) Kwerekana isano n'imimaro by'amagambo agize interuro yoroheje n'interuro y'urusobe;

vii) Kwerekana uburyo interuro igira ibisobanuro bitandukanye bitewe n'amagambo n'imyanya itandukanye ayo magambo arimo.

Imbumbanyigisho ya 7: **Ubusizi nyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yibanda ku mateka y'ubusizi nyarwanda by'umwihariko, ndetse n'ay'ubuvanganzo nyarwanda muri rusange. Iyi mbumbanyigisho isobanura inshoza y'ubusizi, ikerekana ubwoko butandukanye bw'ubusizi n'ibisigo, ndetse ikerekana n'ubuhanga butandukanye bukoreshwa mu busizi n'uburyo ibihangano nyabusizi bishyirwa mu byiciro bitandukanye hagendewe ku buhanga buba bwakoreshejwe ndetse n'utundi turango dutandukanye. Iyi mbumbanyigisho kandi yigisha amahame n'amahange akoreshwa mu gusesengura ibihangano nyabusizi, kandi ikerekana iminozanganzo ikoreshwa mu busizi, ndetse n'uturango dutandukanya imvugo cyangwa inyandiko nyabusizi n'ibindi byiciro by'imvugo cyangwa inyandiko. Mu gusoza, iyi mbumbanyigisho icengera ubusizi nyarwanda igamije kwerekana uko bwagiye butera imbere mu iyogabihe, akamaro bwagiye bugira, ndetse n'ibibazo bwagiye buhura na byo kugeza ubu.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza y'ubusizi n'ingeri zitandukanye z'ubusizi;

ii) Amateka y'ubusizi nyarwanda;

iii) Ubuhanga bukoreshwa mu busizi;

iv) Ibyiciro n'ubwoko bw'ubusizi n'ibisigo;

v) Amahame n'amahange akoreshwa mu gusesengura ibihangano nyabusizi;

vi) Iminozanganzo ikoreshwa mu busizi;

vii) Umumaro w'ubusizi nyarwanda, n'ibibazo bigaragara mu busizi nyarwanda.

Imbumbanyigisho ya 8: **Iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yibanda ku minozangano n'ubuhanzi nyandiko mu Kinyarwanda. Iyi mbumbanyigisho kandi yerekana isano iri hagati y'ubuvanganzo n'iyigandimi. Yerekana kandi amateka y'ubuvanganzo nyandiko mu Rwanda, ndetse n'ubwoko butandukanye bw'iminozanganzo ikoreshwa mu busizi nyandiko mu Kinyarwanda. Iyi mbumbanyigisho inerekana amahame n'amahange akoreshwa mu gusesengura ibahangano nyabusizi nyandiko, ndetse n'uburyo bwo gukora igihangano nyabusizi nyandiko.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza z'ubuvanganzo n'ubuhanzi nyandiko;

ii) Inshoza y'iminozanganzo n'ubwoko butandukanye bwayo;

iii) Isano n'itandukaniro biri hagati y'ubuvanganzo n'iyigandimi nk'ibyerekezo by'ubuhanga;

iv) Amateka y'ubuvanganzo nyandiko mu Rwanda;

v) Ingeri zitandukanye z'ubuvanganzo nyarwanda;

vi) Amahame, amahange n'uburyo bwo gusesengura ibihangano nyandiko;

vii) Uburyo bwo gukora ibihangano nyandiko mu Kinyarwanda.

Imbumbanyigisho ya 9: **Iyiganyito n'isesengurandimi by'Ikinyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho igamije guha abanyeshuri ubumenyi, ubushobozi n'ubumenyingiro mu bijyanye n'iyiganyito ndetse n'isesengurandimi muri rusange, ariko by'umwihariko mu Kinyarwanda. Yibanda ku mahame, amahange n'uburyo bwa gihanga bukoreshwa mu gusesengura inyito mu rurimi runaka, kandi ikanerekana uburyo ayo mahame, amahange n'uburyo bwa gihanga byakoreshwa mu gusesengura inyito mu Kinyarwanda.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza y'iyiganyito;

ii) Inshoza y'isesengurandimi;

iii) Amahame, amahange n'uburyo bwa gihanga bikoreshwa mu iyiganyito n'isesengurandimi;

iv) Gusesengura inyito mu Kinyarwanda hifashishijwe amahame, amahange ndetse n'ibikoresho by'ikoranabuhanga bigezweho;

v) Gusesengura ururimi rw'Ikinyarwanda, imikoreshereze n'inyito by'amagambo arugize mu iyogabihe hifashishijwe amahame n'amahange by'iyiganyito n'isesengurandimi, ndetse n'ibikoreshwo by'ikoranabuhanga

Imbumbanyigisho ya 10: **Inkuru ngufi n'inkuru ndende mu Kinyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yahariwe inkuru ngufi n'inkuru ndende mu Kinyarwanda. Isobanura amateka n'imiterere y'inkuru ngufi n'inkuru ndende mu iyogabihe mu Rwanda no mu Kinyarwanda, ikibanda ku gusobanura abanditsi, ubuzima, amateka n'imiterere byabo n'uruhare bigira ku nkuru ndende n'inkuru ngufi zabo, kandi ikanerekana amahame, amahange n'uburyo byo gusesengura inkuru ndende n'inkuru ngufi hibandwa ku bintu bitandukanye biyigize birimo imiterere y'inkuru ubwayo, ibikorwa, abanyarubuga, ibarankuru, ndetse n'imimaro n'intego by'inkuru.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Imiterere n'uturango by'inkuru ngufi n'inkuru ndende;

ii) Itandukaniro n'isano hagati y'inkuru ngufi n'inkuru ndende;

iii) Amateka, imiterere n'uturango by'inkuru ngufi n'inkuru ndende mu iyogabihe mu Rwanda;

iv) Uruhare rw'ubuzima, amateka n'imiterere by'abanditsi mu myandikire y'inkuru ngufi n'inkuru ndende;

v) Amahame, amahange n'uburyo bwo gusesengura inkuru ndende n'inkuru ngufi;

vi) Ibyitabwaho mu gusesengura inkuru ngufi n'inkuru ndende.

Imbumbanyigisho ya 11: **Iyigarutonde, iyigamuga n'iyandikankoranya by'Ikinyarwanda**

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho itangira yigisha abanyeshuri inshoza z'iyigarutonde, iyigamuga, n'iyandikankoranya. Yerekana uburyo n'ubuhanga bukoreshwa mu mirimo yo gukora no kwandika amoko atandukanye y'intonde, inkoranyamuga n'inkoranyamagambo. Byongeye, iyi mbumbanyigisho yita ku mahange, amahame n'uburyo bwa gihanga bukoreshwa mu iyigarutonde, iyigamuga n'iyandikankoranya. Hagendewe kuri aya mahame n'amahange, iyi mbumbanyigisho yerekana uburyo bwo kwandika, gusesengura no kujora intonde, inkoranyamuga n'inkoranyamagambo zanditse mu Kinyarwanda by'umwihariko, ndetse no mu zindi ndimi muri rusange.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza z'iyigarutonde, iyigamuga, n'iyandikankoranya;

ii) Amateka y'iyigarutonde, iyigamuga n'iyandikankoranyamagambo mu Rwanda;

iii) Ubwoko butandukanye bw'intonde, inkoranyamuga n'inkoranyamagambo;

iv) Uburyo, ubuhanga, amahame n'amahange bikoreshwa mu iyandikarutonde, iyandikamuga n'iyandikankoranyamagambo;

v) Isano iri hagati y'iyigarutonde, iyigamuga n'iyandikankoranyamagambo n'ibindi byerekezo by'iyigandimi nk'iyiganyito, isesengurandimi, n'ibindi;

vi) Gusesengura no kujora intonde, inkoranyamuga n'inkoranyamagambo;

vii) Gukora urutonde no kwandika inkoranyamuga n'inkoranyamagambo hifashishijwe amahame n'amahange ndetse n'ibikoresho by'ikoranabuhanga bigezweho.

2.7.11 English modules

Brief description and aims

The aim of the English language education programme is to equip students with the knowledge, skills and competences needed in English as language of teaching and learning in the Rwandan educational system and as language of wider communication in global scientific, technological and business arenas. The focus of the English programme at Advanced Diploma level is on the four language skills, i.e. speaking, listening, writing and reading; general linguistics and its sub-fields as well as literature and its different genres.

Learning outcomes

By the end of the programme, students should be able to*:*

i) demonstrate an understanding of the main features of a well written English text and the strategies to use to interpret various English materials used in academic context

ii) Demonstrate an understanding of the grammatical structures of English, elements of English language meaning and use

iii) Demonstrate an understanding of basic literary devices and styles used in African, British and American literature

iv) Produce coherent text-types in English

v) Conduct an intelligible conversation in English

vi) Detect and correct language mistakes in spoken or written English

vii) Carry out sociolinguistic surveys and contribute to the improvement of a language plan used in a given context.

Table 30: **Distribution of English modules**

SN	Module	Year of study	Semester	Credits
1	English Reading and Writing Skills	1	1	15
2	English Listening and Speaking Skills	1	1	10
3	Linguistics and Grammar of English	1	2	15
4	Introduction to Literature in English	1	2	10
5	World English Literature	2	1	15

6	Morphology and Syntax of English	2	1	15
7	Sociolinguistics	2	2	10
8	Semantics and Pragmatics of English	2	2	10
9	Study of English Prose (Novel and Short Story)	3	1	10
10	Psycholinguistics	3	1	10
Total credits				**120**

Module 1: English Reading and Writing Skills

Indicative content

The module aims to help students enhance and refine the two language skills of writing and reading in English as they navigate their studies at the university as well as in other various settings. It mainly focuses on some informal and formal types of English writing such as memo, letter, essay and summary as well as the analysis of texts which can be used for teaching and learning.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain the reading strategies used while reading and interpreting various types of reading materials used in an academic context

ii) Explain the main features of a well written paragraph, short essay, text summary, and memo as well as formal and informal letters in English.

iii) Read critically and analytically general text types written in English

iv) Produce accurate and coherent short essays, short summaries of texts as well as formal and informal letters and CV in English

v) Use a computer to produce a piece of writing or present findings from the read document(s)

vi) Confidently work on a variety of formal and informal pieces of writing in English.

vii) Critically scrutinize the reading materials suitable for academic purposes.

Module 2: English Listening and Speaking Skills

Indicative content

The module aims to help students enhance and refine the two language skills of listening and speaking in English as they navigate their studies at the university as well as in other various settings. ***It*** mainly focuses on various genres of listening (listening and summarizing, listening and note-taking, listening for general information, listening and gap-filling) as well as English language sounds and aspects of connected speech, paying special attention to British and American varieties of English.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain the main phonological rules in English;
ii) Take note of the message expressed in English;
iii) Speak accurately;
iv) Interact with peers on a range of topics in English;
v) Interpret an aural message to a third party;
vi) Perform various listening tasks;
vii) Hold an intelligible conversation in English using a variety of presentation modes.

Module 3: Linguistics and Grammar of English

Indicative content

The module aims to equip and acquaint students with basic theories, principles, processes and approaches used in the scientific study of language. The module also aims to provide students with the basic knowledge of grammar that will help them improve their writing and speaking and come up with clear and accurate expressions of English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key linguistic components and fundamental grammatical structures of English;
ii) Describe the fundamental components of linguistics;
iii) Distinguish linguistic schools and sub-fields;
iv) Apply the rules governing the use of the different types of words to make sentences and analyze texts;
v) Discuss the main linguistic schools and the functions of the sub-fields of linguistics;
vi) Analyze sentences, detect language mistakes and correctly write English;
vii) Carry out linguistic and grammatical analysis of English.

Module 4: Introduction to Literature in English

Indicative content

The module aims to equip students with the basic notions and concepts of English literature which help them to determine its nature (oral and written literature), situate it among other arts and sciences, discern its specificity, distinguish the qualities of a literary work and describe and analyze the major and minor literary genres.

Learning outcomes

By the end of this module, students should be able to:

i) Carry out critical appraisal of a literary work whether it is major and minor literary genre (prose fiction, poetry or drama).

ii) Analyze some selected works to illustrate the major characteristics of every literary genre and identify the theories developed by literary critics

iii) Identify and appreciate the major themes developed in literary works.

Module 5: World English Literature

Indicative content

The module is intended to introduce students to the major literary genres and historical, cultural and political forces and ideologies that have shaped African, British and American literature. The module is also designed to equip the students with the tools that enable them to interpret, analyze and appreciate a wide range of texts and styles.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain various historical, cultural and political forces and ideologies that have shaped African, British and American literature

ii) Use basic literary devices and styles in African, British and American literature

iii) Explain major periods of English literature in African, British and American context

iv) Develop own ideas about literature, its form, its functions and its politics

v) Interpret literary texts orally and in writing in a classroom situation and outside the class

vi) Carry out literary research in different literary genres.

Module 6: Morphology and Syntax of English

Indicative content

The module aims to analyze English language structures and explore its various morphological and syntactical aspects. The focus is on speech sounds in English, linguistic units in English, transformational grammar and other generative approaches in English.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain the concepts of morphology and syntax in English;

ii) Describe the main elements in the function of morphology and syntax in English;

iii) Apply The generative-transformational approach to English sentences;

iv) Explain generative-transformational approach to English sentences;

v) Analyze the quality of utterances and written words;

vi) Discuss the principles of word derivation;

vii) Use English correctly in speaking and writing.

Module 7: Sociolinguistics

Indicative content

The module helps students understand how language is used in different layers of human society and how it generates idiolects, dialects and sociolects. It is also concerned with language policies and helps to understand and explain the fundamentals of language planning for social development.

Learning outcomes

By the end of this module, students should be able to*:*

i) Describe the way linguistic productions especially texts are embedded in individual and social contexts;

ii) Explain the relationships between language and textual, individual and social environment;

iii) Apply key techniques of sociolinguistic analysis;

iv) Describe the influence of sociolinguistics on language policy and planning;

v) Demonstrate the influence of society in language policy and planning;

vi) Analyze texts emphasizing individual and social marks embedded in them;

vii) Analyze the language policy in use or carry out sociolinguistic surveys.

Module 8: Semantics and Pragmatics of English

Indicative content

The module introduces students to the semantics and pragmatics of English as basic elements of meaning and use in that language. It focuses on various dimensions of meaning in English, relations between text and context in English; relations between discourse and power, discourse and interaction in English; conversational implicature in English, social language codes in English and deviation from standard language varieties of English.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain key concepts of semantics and pragmatics in English

ii) Explain the main elements of language meaning and use in English

iii) Analyze and explain written texts and spoken words in English

iv) Discuss the meaning and use of language in both spoken words and written texts in English

v) Apply the knowledge of semantics and pragmatics to teach English.

Module 9: Study of English Prose (Novel and Short Story)

Indicative content

This module aims to give an overview of English prose fiction (novel and short story), its history, characteristics and elements for its analysis.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain the history of English prose fiction (novel and short story)
ii) Describe the characteristics of English novel and short story
iii) Describe the elements of analysis of English novel and short story
iv) Apply basic skills to analyze English novel and short story
v) Evaluate the emergence and growth of English novel and short story
vi) Discuss English novel and short story orally or in writing in or outside class
vii) Carry out literary research on various types of English novel and short stories.

Module 10: Psycholinguistics

Indicative content

The module aims to help students understand the relationship between the human mind and language. It focuses on the origins of human language; language acquisition, comprehension and production; language pathology as well as language and thought.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain the steps of language acquisition, comprehension and production
ii) Explain the main elements of the human language processing
iii) Describe the cognitive processes constituting human language use
iv) Discuss the psychological and neurobiological aspects of language
v) Analyze the relationship between language and thought
vi) Apply the principles of psycholinguistics to teaching and learning.

2.7.12 Les modules du Francais

Contenu indicatif du programme

Le programme de « Advanced Diploma of Education » in French vise à donner aux étudiants une formation universitaire qui les aidera à devenir les enseignants de la langue et littérature françaises dans les écoles secondaires. En plus, ce programme a pour but de promouvoir

l'épanouissement intellectuel ainsi que les connaissances et aptitudes que fait acquérir l'étude de la littérature et de la langue, ceci pour la promotion de la qualité d'enseignement au Rwanda, en Afrique et ailleurs.

Les objectifs du programme

A la fin de ce programme les étudiants seront capable de:

i) Expliquer la linguistique et la littérature de la langue française;

ii) Décrire la grammaire française, ainsi que la linguistique;

iii) Décrire la littérature africaine d'expression française, et la littérature comparée en français

iv) Évaluer la linguistique appliquée à l'enseignement du français;

v) Exploiter la stylistique française et la création littéraire.

Table 31: **Structure du programme du programme de français**

No	Module	Année d'étude	Semestre	Crédits
1	Expression orale et écrite en français I	1	1	15
2	Expression orale et écrite en français II	1	1	
3	Introduction à la langue et à la linguistique françaises	1	2	15
4	Introduction à la littérature française	1	2	10
5	Grammaire française	2	1	10
6	Littérature africaine d'expression française	2	1	10
7	Linguistique appliquée à l'enseignement du français	2	1	10
8	Stylistique française et création littéraire	2	2	10
9	Français professionnel	2	2	10
10	Linguistique appliquée à l'enseignement du français	3	1	10
11	Français sur objectifs universitaires	3	1	10
Le total des crédits				**120**

Module1. Expression orale et écrite en français I

Le contenu indicatif

Ce module permettra aux étudiants de comprendre et utiliser des expressions familières et quotidiennes ainsi que des énoncés très simples qui visent à satisfaire des besoins concrets. Il leur permettra de se présenter ou de présenter quelqu'un et poser à une personne des questions qui la concernent par exemple, sur son lieu d'habitation, ses relations, ce qui lui appartient. Il s'agira aussi de pouvoir communiquer de façon simple si l'interlocuteur parle lentement et distinctement et se montrer coopératif. A la fin de ce module l'étudiant aura acquis le niveau A2 du CECRL.

Les objectifs d'apprentissage

A la fin du module l'étudiant sera capable de:

i) Atteindre le niveau A2 du Cadre Européen Commun de Référence pour les Langues.

ii) Comprendre et utiliser des expressions familières et quotidiennes ainsi que des énoncés très simples qui visent à satisfaire des besoins concrets;

iii) Se présenter ou présenter quelqu'un et poser à une personne des questions la concernant par exemple, sur son lieu d'habitation, ses relations, ce qui lui appartient, etc.

iv) Répondre au même type de questions;

v) Communiquer de façon simple si l'interlocuteur parle lentement et distinctement et se montre coopératif.

vi) Utiliser l'outil informatique pour apprendre la langue française.

Module 2. Expression orale et écrite en français II

Le contenu indicatif

En mobilisant les compétences communicatives, ce module vise à permettre à l'apprenant de comprendre des phrases isolées et des expressions fréquemment utilisées en relation avec des domaines immédiats de priorité (par exemple, informations personnelles et familiales simples, achats, environnement proche, travail). Avec ce module l'étudiant pourra communiquer lors de tâches simples et habituelles ne demandant qu'un échange d'informations simple et direct sur des sujets familiers et habituels. Il pourra aussi décrire avec des moyens simples sa formation, son environnement immédiat et évoquer des sujets qui correspondent à des besoins immédiats. A la fin de ce module l'étudiant aura acquis le niveau B1 du CECRL.

Les objectifs d'apprentissage

A la fin de ce module, l'étudiant sera capable de:

i) Comprendre des expressions et un vocabulaire très fréquent relatifs à ce qui le concerne de très près (par exemple lui-même, sa famille, les achats, l'environnement proche, le travail);

ii) Saisir l'essentiel d'annonces et de messages simples et clairs;

iii) Lire des textes courts très simples;

iv) Trouver une information particulière prévisible dans des documents courants comme les publicités, les prospectus, les menus et les horaires et comprendre des lettres personnelles courtes et simples;

v) Communiquer lors de tâches simples et habituelles ne demandant qu'un échange d'informations simple et direct sur des sujets et des activités familiers.

vi) Utiliser l'outil informatique pour apprendre la langue française.

Module 3 : Introduction à la langue et à la linguistique françaises

Le contenu indicatif

Ce module vise à fournir aux étudiants les éléments de base de la langue et de la linguistique françaises. Ce module équipe les étudiants des connaissances de base sur le concept de langue, différents types et catégories du langage, l'usage et différentes fonctions de langue, phonétique et phonologie du français contemporain, ainsi que sur la production orale en

français. Il leur permet également de s'exprimer couramment en français en respectant les règles phonétiques et communicatives.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Démontrer les connaissances sur les notions de base sur le langage;
ii) Décrire différents types et catégories des langues;
iii) Expliquer l'usage et fonctions de langues;
iv) Appliquer la phonétique et phonologie du français contemporain,
v) Appliquer les techniques de la production orale en français.

Module 4 : Introduction à la littérature française

Le contenu indicatif

Ce module vise à initier les étudiants aux grands courants et genres littéraires en France du Moyen Âge à nos jours et aux différentes approches d'explication de texte. Il va introduire les étudiants sur les mouvements littéraires comme la poésie épique, roman courtois, satire, lyrisme, ainsi que sur les courants littéraires comme la Renaissance, Classicisme, Siècle des Lumières, romantisme, réalisme, surréalisme, naturalisme, symbolisme, nouveau roman, etc. A la fin, ce module va introduire aux étudiants les différentes approches d'explication du texte français.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Définir les grands noms de la littérature française du Moyen Âge à nos jours;
ii) Décrire les mouvements littéraires: poésie épique, roman courtois, satire, lyrisme, etc;
iii) Décrire Les courants littéraires: Renaissance, Classicisme, Siècle des Lumières, romantisme, réalisme, surréalisme, naturalisme, symbolisme, nouveau roman, etc,
iv) Décrire les différentes approches d'explication de texte,
v) Appliquer les différentes approches d'explication de texte sur le français.

Module 5: Grammaire française

Le contenu indicatif

Ce module vise à faire un rappel sur l'orthographe du français et à renforcer chez l'étudiant les éléments de la formation des mots français. Il leur fournit des éléments de la morphosyntaxe du verbe français et des éléments de la morphosyntaxe de la phrase française qui leur permettront d'acquérir la compétence grammaticale.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Expliquer les différentes modes de formation des mots français;
ii) Décrire the techniques de la morphosyntaxe des parties du discours;
iii) Décrire la morphosyntaxe du verbe;
iv) Expliquer la morphosyntaxe de la phrase;
v) Appliquer the techniques de la morphosyntaxe des parties du discours;
vi) Appliquer la morphosyntaxe de la phrase.

Module 6: Littérature africaine d'expression française

Le contenu indicatif

Ce module vise à apprendre aux étudiants à repérer des indices, établir des liens, mettre en relation les informant du texte en vue d'en déduire des significations. Il vise également à aider les étudiants à expliciter et défendre sa position sur les intentions des poètes, des dramaturges et des romanciers de la littérature africaine francophone. Enfin ce module va permettre aux étudiants d'analyser les éléments linguistiques relatifs aux thèmes des textes et d'exprimer leur point de vue sur les différents types de violence décrits par la littérature africaine francophone.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en capable de:

i) Expliquer la poésie: la négritude et la poésie militante;
ii) Expliquer le théâtre: la violence dans le Théâtre africain;
iii) Expliquer le roman: l'anticolonialisme et la désillusion dans le roman africain, le thème de l'exil, de l'enfant-soldat, de la violence faite à la femme dans le roman des années 2000.
iv) Décrire la différence entre la poésie, le théâtre et le roman.
v) Analyser et juger la poésie, le théâtre et le roman dans le contexte africain

Module 7: Linguistique appliquée à l'enseignement du français

Le contenu indicatif

Ce module vise à faire acquérir aux étudiants des compétences de compréhension de la nécessité et de l'utilité d'enseigner le FLE en tenant compte des besoins des apprenants mais aussi des contraintes inhérentes à la mission des institutions de l'Éducation. Il vise également à décrire les notions de base de sociolinguistique et de psycholinguistique et à les appliquer dans l'enseignement du FLE. Enfin, il permet aux étudiants de pouvoir mener une enquête sociolinguistique en didactique du FLE au Rwanda.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Expliquer les notions de sociolinguistique et de psycholinguistique;
ii) Décrire les techniques de l'Acquisition et production du langage;
iii) Appliquer les techniques de l'Acquisition et production du langage;
iv) Appliquer les techniques Sociolinguistique et Psycholinguistique en didactique du FLE au Rwanda.

Module 8: Stylistique française et création littéraire

Le contenu indicatif

Ce module vise à entraîner les étudiants aux méthodes et techniques d'analyse stylistique des textes littéraires. Il vise également à les initier, par des exercices pratiques, aux techniques d'écriture de textes littéraires de différents genres.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Décrire l'organisation d'un texte poétique, dramatique et prosaïque;
ii) Décrire la rhétorique et les figures de style;
iii) Appliquer les procédés énonciatifs et lexicaux;
iv) Analyser Les constituants syntaxiques;
v) Décrire la théorie et les étapes de la création littéraire;
vi) Appliquer les conseils pratiques pour devenir écrivain;
vii) Appliquer les techniques d'expression écrite.

Module 9: Le français professionnel

Le contenu indicatif

Ce module permettra aux étudiants de français d' acquérir des compétences langagières professionnelles de niveau B1 liées au monde des affaires, du tourisme, de l'hôtellerie et de la restauration et de l'éducation.

Les objectifs d'apprentissage

Au terme de ce module, l'étudiant sera capable de:

i) Faire face à des complications au téléphone;
ii) Composer un message d'accueil;
iii) Parler de ses horaires, pauses, tâches, relations sociales au travail;
iv) Rédiger un courrier professionnel;
v) S'informer sur les moyens de transport;

vi) Décrire les qualités des hôtels rwandais;

vii) Décrire les sites touristiques du Rwanda**.**

Module 10: Linguistique appliquée à l'enseignement du français (10 crédits)

Le contenu indicatif

Ce module vise à faire acquérir aux étudiants des compétences de compréhension de la nécessité et de l'utilité d'enseigner le FLE en tenant compte des besoins des apprenants mais aussi des contraintes inhérentes à la mission des institutions de l'Éducation. Il vise également à décrire les notions de base de sociolinguistique et de psycholinguistique et à les appliquer dans l'enseignement du FLE. Enfin, il permet aux étudiants de pouvoir mener une enquête sociolinguistique en didactique du FLE au Rwanda.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en capable de:

i) Expliquer les notions de sociolinguistique et de psycholinguistique;

ii) Reconnaître l'acquisition et production du langage;

iii) Décrire la Sociolinguistique et psycholinguistique en didactique du FLE au Rwanda;

iv) Analyser la sociolinguistique et psycholinguistique en didactique du FLE au Rwanda;

v) Juger sociolinguistique et psycholinguistique en didactique du FLE au Rwanda.

Module 11: Le français sur objectifs universitaires (crédits)

Français sur objectifs Universitaires

Ce module, destiné aux étudiants de la troisième année, vise à outiller les étudiants des connaissances et des compétences qui leur permettent de mener des travaux scientifiques et académiques. Le contenu de ce module consiste en une dissertation, les compétences orales à des fins académiques, la lecture dans un contexte académique, la lecture critique, la réflexion scientifique, le plagiat, sources d'information, citations et références, participation à un colloque, préparer une communication, prendre la parole devant un public spécialisé, déterminer une problématique, synthétiser un document, élaborer un plan de recherche, rédiger un projet, un mémoire, une thèse.

Les objectifs d'apprentissage

A la fin de ce module, l'étudiant sera capable de***:***

i) Faire une lecture scientifique

ii) Synthétiser un document,

iii) Préparer une communication

iv) Prendre la parole devant un public spécialisé

v) Déterminer une problématique,

vi) Élaborer un plan de recherche,

vii) Rédiger un projet, un mémoire.

2.7.12 Moduli za Kiswahili

Ufafanuzi Mfupi wa Malengo ya Ujifunzaji wa Somo la Kiswahili

Kiswahili ni lugha inayokua kwa kasi kimataifa huku ikiwa na nafasi ya kipekee katika utangamano wa Jumuiya ya Afrika na jumuiya nyingine za kikanda. Programu hii inakusudia kuandaa wahitimu wenye umilisi wa kimawasiliano na taaluma mbalimbali za Kiswahili na hivyo kuwa walimu wa Kiswahili walio mahiri katika ufundishaji wa taaluma za Kiswahili katika shule za sekondari.

Matokeo ya Ujifunzaji Yanayotarajiwa

Wanafunzi wanaohitimu katika programu hii wanatarajiwa waweze:

i) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano sahili na changamani katika zama za kidijiti na utandawazi;

ii) Kulinganisha na kulinganua muundo na sarufi ya Kiswahili dhidi ya lugha za Kibantu akidhirisha umahiri katika TEHAMA;

iii) Kuhakiki matini za fasihi andishi na fasihi simulizi akiweka mkazo katika kujenga maadili ya kitaifa na kiulimwengu;

iv) Kuitumia fasihi kama nyenzo ya kufundishia lugha na kutekeleza mtaala unaoegemea katika uwezo katika mazingira yanayohitaji kutumia stadi za kidijiti;

v) Kuyatumia maarifa ya isimu katika ufundishaji wa lugha ya Kiswahili katika madarasa ya lugha ya zama kidijiti;

vi) Kutumia nadharia za uhakiki katika kuhakiki kazi za fasihi zinazokusudia kujenga elimu jumuishi, uraia wa kiulimwengu, na kukuza maadili katika jamii.

Jedwali Namba 32: Jedwali la mgawanyo wa moduli zinazohusiana na somo la Kiswahili

Na:	Moduli	Mwaka wa Masomo	Semista	Krediti
1	Utangulizi wa Mawasiliano	1	1	15
2	Utangulizi wa lugha na Misingi ya isimu	1	1	10
3	Utangulizi wa fasihi ya Kiswahili	1	2	10
4	Mawasiliano Changamani	1	2	15
5	Ushairi wa Kiswahili na Nathari Bunilizi	2	1	10
6	Fonolojia na mofolojia ya Kiswahili	2	1	10

7	Sintaksia ya Kiswahili na Uchanganuzi wa kilongo	2	1	10
8	Drama na Fasihi Simulizi ya Kiswahili na Kiafrika	2	1	10
9	Isimujamii	3	1	10
10	Isimu Linganishi na Athropolojia ya Kiswahili	3	1	10
Jumla ya Krediti				**120**

UFAFANUZI WA MODULI NA MATOKEO YA UJIFUNZAJI

MODULI YA KWANZA: Stadi za Mawasiliano

Ufafanuzi

Moduli hii inaweka mkazo katika kukuza umilisi wa kimawasiliano katika stadi nne za lugha: kusikiliza, kuzungumza, kusoma na kuandika. Dhima mbalimbali za mawasiliano zinajadiliwa. Zaidi ya hivyo, mchakato wa mawasiliano unajadiliwa pamoja na aina mbalimbali za mawasiliano zilizopo. Aidha, vikwazo mbalimbali vya mawasiliano vinajadiliwa pamoja na utatuzi wa vikwazo vya mawasiliano.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kudhihirisha maarifa na ufahamu wa lugha na mawasiliano;

ii) Kukamilisha majukumu mbalimbali yanayohitaji umilisi wa kimawasiliano katika zama za kidijiti;

iii) Kushiriki kwa ukamilifu katika maingiliano ya kimawasilinao kwa malengo mabalimbali yaliyopo katika maisha halisi wakitumia nyenzo za kidijiti;

iv) Kuandika na kusoma kwa ufasaha matini za Kiswahili za kawaida na zile kutoka nyenzo za kidijiti;

v) Kuzungumza na kusikiliza kwa ufasaha katika muktadha wa mazungumzo ya Kiswahili ya ana kwa ana au kutumia nyenzo za kidijiti;

vi) Kuchanganua matini mbalimbali kwa malengo ya kubainisha muktadha wa mawasilino uliopo;

vii) Kulinganisha na kulinganua matini andishi na matini simulizi; na

viii) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano kwa kuheshimu tofauti za watu za dini, utamaduni.

MODULI YA PILI: Utangulizi wa Lugha na Misingi ya Isimu

Ufafanuzi

Moduli hii inashughulika na dhana za jumla kuhusu lugha pamoja na lugha ya Kiswahili kwa umahsusi. Moduli inaangaza kwa kifupi kuhusu sarufi ya Kiswahili na historia ya lugha ya Kiswahili. Aidha, inaweka msingi kuhusu maswala ya isimu katika lugha ya Kiswahili. Hivyo maana ya isimu na matawi mbalimbali ya isimu yanajadiliwa. Moduli inatoa fursa kwa wanafunzi kujuzwa majukumu mbalimbali ya wanaisimu.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufasili lugha na kueleza sifa za lugha kwa mdomo au kutumia nyenzo za TEHAMA;

ii) Kufafanua historia ya lugha ya Kiswahili kwa njia ya TEHAMA;

iii) Kuchanganua muundo na sarufi ya Kiswahili;

iv) Kutumia kwa ufasaha muundo na sarufi ya Kiswahili katika mawasiliano halisi ya ana kwa ana katika zama za kidijiti;

v) Kuelezea Matawi mbalimbali ya isimu kwa kutumia nyenzo za kidijiti;

vi) Kulinganisha na kutofautisha lugha ya Kiswahili na Kinyarwanda;

vii) Kutathimini mikabala tofauti iliyopo kuhusu asili ya Kiswahili;

viii) Kulinganisha na kutofautisha matawi mbalimbali ya isimu.

MODULI YA TATU: Utangulizi wa Fasihi ya Kiswahili

Ufafanuzi

Moduli hii inajikita katika kuweka bayana maarifa ya jumla kuhusu fasihi na maarifa mahsusi kuhusu fasihi ya Kiswahili. Hivyo, moduli inatalii maana ya afsihi, mitazamo kuhusu fasihi, asili ya fasihi, dhima za fasihi, na tanzu mbalimbali za fasihi na misingi ya uhakiki wa fasihi. Aidha, moduli inamtambulisha mwanafunzi katika kuitazama fasihi kama nyenzo ya ufundishaji wa lugha.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kueleza maana ya fasihi;

ii) Kufafanua mitazamo iliyopo kuhusu fasihi;

iii) Kujadili dhima za fasihi kutoka zama za kale mpaka katika zama za kidijiti;

iv) Kujadili kuhusu asili ya fasihi na hivyo kujenga msingi wa kuheshimu mawazo tofauti;

v) Kulinganisha na kulinganua tanzu za fasihi katika zama za kidijiti;

vi) Kuainisha tanzu za fasihi kwa kutumia nyenzo mbalimbali za kidijiti;

vii) Kuhakiki matini za fasihi andishi na fasihi simulizi kwa minajili ya kujenga misingi ya elimu jumuishi, uraia wa kiulimwengu ; na

viii) Kuitumia fasihi kama nyenzo ya ufundishaji na ujifunzaji wa lugha na utekelezaji wa mtaala unaoegemea katika uwezo katika zama za kidijiti.

MODULI YA NNE: Stadi za Mawasiliano Changamani

Ufafanuzi

Moduli hii inaweka mkazo katika kukuza umilisi wa mawasiliano changamani katika stadi nne za lugha: kusikiliza, kuzungumza, kusoma na kuandika. Aina tofauti za matini za mazungumzo na kimaandishi katika kiwango changamani ndizo zinazopewa kipaumbele katika kujenga stadi za lugha. Hivyo moduli inatoa fursa kwa mwanafunzi kuwa na umilisi wa matini changamani za kimazungumzo na kimaandishi.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua mawasiliano changamani katika stadi nne za lugha katika zama za kidijiti;

ii) Kubainisha aina tofauti za matini andishi zinazoakisi mawasiliano changamani kwa kutumia TEHAMA;

iii) Kubainisha aina tofauti za matini za kimazungumzo zinazoakisi mawasiliano changamani;

iv) Kushiriki kwa ukamilifu katika mawasiliano changamani kama vile usaili wa kazi, midahalo, mahojiano ya redioni au katika runinga;

v) Kuandika kwa ufasaha kwa kutumia nyenzo za kidijiti matini andishi kama vile barua ya kuomba kazi, kumbukumbu za mikutano, hotuba, hadithi za kubuni, risala, na matini za kitaaluma;

vi) Kutoa mrejesho sahihi kutokana na kusikiliza mawasiliano ya ana kwa ana au kutoka nyenzo za kidijiti mawasiliano changamani kama vile mdahalo, mkutano, majadiliano, taarifa ya habari, na mahubiri ya kanisani au msikitini;

vii) Kusoma matini changamani kama vile insha za hoja, kisanaa, matini za kitaaluma, mwongozo wa matumizi ya kitu, maelekezo ya kuzingatia, na kisha kuweza kutoa mrejesho sahihi; na

viii) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano yanayozingatia maadili, utu, na kuheshimu tofauti miongoni mwa binadamu.

MODULI YA TANO: Ushairi wa Kiswahili na Nathari Bunilizi (Krediti 10)

Ufafanuzi wa Moduli

Moduli hii inashughulikia ushairi wa Kiswahili kwa upande mmoja na nathari bunilizi kwa upande mwingine. Inaweka mkazo katika fasili na sifa bainifu za ushairi na nathari bunilizi. Aidha, historia ya ushairi wa Kiswahili pamoja na nathari bunilizi inashughulikiwa. Hivyo basi, moduli hii inakusudia kumpa mwanafunzi uelewa wa kina kuhusu ushairi wa Kiswahili pamoja na nathari bunilizi ikiwa pia ni nyenzo za ufundishaji lugha.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua ushairi wa Kiswahili na nathari bunilizi za Kiswahili;

ii) Kujadili sifa bainifu za ushairi wa Kiswahili, hadithi fupi andishi, na riwaya;

iii) Kulinganisha na kulinganua kumbo mbalimbali za ushairi wa Kiswahili;

iv) Kulinganisha na kulinganua kumbo mbalimbali za nathari bunilizi kama vile riwaya vs hadithi fupi andishi; hadithi fupi andishi vs hadithi simulizi; hadithi fupi andishi vs novela;

v) Kuhakiki ushairi wa Kiswahili na nathari bunilizi za Kiswahili kwa minajili ya kujenga maadili, thamani na mitazamo inayokubalika katika jamii;

vi) Kutumia ushairi au nathari bunilizi kama nyenzo ya kufundishai na kujifunzia lugha ya Kiswahili na kutekeleza mtaala unaoegemea katika uwezo;

vii) Kusimulia nathari bunilizi na kutongoa kumbo teule za ushairi kwa kuzingatia mahitaji ya zama za kidijiti; na

viii) Kutunga mashairi au hadithi fupi andishi kwa kutumia TEHAMA.

MADA YA SITA: Fonolojia na Mofolojia ya Kiswahili

Ufafanuzi

Moduli hii inafafanua vipengele mbalimbali vya kifonolojia na kimofolojia. Aidha, inaeleza kwa ujumla sio tu kuhusu unukuzi wa kifonolojia na kiotografia wa matini za kifasihi bali pia kategoria za kisarufi. Moduli hii pia inakusudia kuwawezesha wanafunzi kuelezea nomino, vivumishi, viwakilishi, na vitenzi kwa kuegemea katika miundo ya kimofolojia ya aina hizi za maneno.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi kuhusu fonolojia na mofolojia kwa kutumia nyenzo za kidijiti;

ii) Kufafanua muundo wa nomino, kivumishi, kiwakilishi na kitenzi katika sarufi ya Kiswahili;

iii) Kuelezea kategoria mbalimbali za kisarufi pamoja na miundo yake;

iv) Kutumia kategoria sahihi za maneno katika kuunda matini za Kiswahili kwa nyenzo za kidijiti;

v) Kutumia kwa usahihi kanuni za kimofo-fonolojia katika kuchanganua maneno ya Kiswahili kwa kutumia TEHAMA;

vi) Kubainisha elementi bainifu za fonolojia na mofolojia ya Kiswahili;

vii) Kutumia kwa usahihi vipengele vya sarufi ya Kiswahili katika mawasiliano mbalimbali; na;

viii) Kudhihirisha muundo wa kategoria za kisarufi za Kiswahili.

MODULI YA SABA: Sintaksia ya Kiswahili na Uchanganuzi wa Kilongo (Krediti 10)

Ufafanuzi

Moduli inashughulikia vipengele mbalimbali vya kisintaksia katika lugha ya Kiswahili. Aidha, inatalii dhana mbalimbali kuhusu uchanganuzi wa kilongo (disikozi) na kufafanua uhusiano wake na meneo mengine ya kiisimu. Aidha, sentensi sahili na zile changamano za Kiswahili zinachanganuliwa huku mkazo ukiwekwa katika vipashio vyake kuanzia kile kidogo kabisa mpaka kile kikubwa zaidi.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi kama vile sintaksia na uchanganuzi wa kilongo;

ii) Kufafanua miundo ya kisintaksia ya Kiswahili ya aina za maneno, sentensi sahili na sentensi changamani;

iii) Kujadili uhusiano baina ya sintaksia ya Kiswahili na vipengele vingine vya kisarufi;

iv) Kutumia aina za maneno muafaka katika kuunda sentensi za Kiswahili;

v) Kutumia nadharia tofauti katika kubainisha na kutofautisha sentensi za Kiswahili na kilongo;

vi) Kutathimini kanuni za kuanisha kilongo na sentensi za Kiswahili;

vii) Kufanya mawasiliano kwa ufasaha kutokana na kuzingatia kilongo na sintaksia ya Kiswahili na nyenzo anuai za kidijiti; na

viii) Kuandaa utafiti kuhusu diskozi na sintaksia ya Kiswahili na kuzisambaza kwa kutumia nyenzo za TEHAMA.

MODULI YA NANE: Drama na Fasihi Simulizi ya Kiswahili na Kiafrika (Krediti 10)

Ufafanuzi

Moduli hii inakusudia kumuwezesha mwanafunzi kuwa na uelewa wa kina wa drama na fasihi simulizi ya Kiswahili na Kiafrika. Moduli inatalii uhusiano wa drama na fasihi simulizi na nafasi yake katika kufanikisha malengo mbalimbali ya elimu. Hivyo moduli hii inaifanya drama na fasihi simulizi kuchukua mwelekeo wa kuwa nyenzo muhimu katika maisha ya mwanadamu toka kuzaliwa kwake mpaka kufa.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana na elementi za msingi za drama na fasihi simulizi;

ii) Kufafanua asili ya drama na uhusiano uliopo baina ya drama na fasihi simulizi;

iii) Kuelezea aina za drama na historia ya drama ya Kiswahili na fasihi simulizi;

iv) Kuanisha tanzu mbalimbali za fasihi simulizi na drama;

v) Kujadili changamoto za uanishaji wa tanzu za fasihi simulizi kwa kutumia TEHAMA;

vi) Kulinganisha na kulinganua fasihi simulizi ya Kiswahili dhidi ya ile ya Kiafrika;

vii) Kuhakiki drama na fasihi simulizi ya Kiswahili na Kiafrika na kuwasilisha matokeo kwa kutumia nyenzo za TEHAMA;

viii) Kutathimini ufaafu wa drama na fasihi simulizi kama nyenzo ya ufundishaji lugha na utekelezaji wa mtaala unaoegemea katika uwezo katika zama za kidijiti.

MODULI YA TISA: Isimujamii

Ufafanuzi

Malengo ya moduli hii ni kumuwezesha mwanafunzi kufafanua michakato tofauti inayohusika katika upataji lugha, matumizi ya lugha katika jamii, na upoteaji wa lugha. Moduli itawapatia wanafunzi uwezo wa kuelezea elementi za msingi za isimujamii, upangaji lugha na utumizi wa lugha katika Afrika Mashariki kwa malengo anuai.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana muhimu za isimujamii kama vile mawanda ya isimujamii, lugha, ulumbi, uchanganyaji lugha na uchanganyaji misimbo;

ii) Kujadili changamoto zinazoikabili lugha ya Kiswahili kama lugha ya pili na ya kigeni na kuziwasilisha kwa kutumia TEHAMA;

iii) Kulinganisha na kulinganua lahaja mbalimbali za Kiswahili;

iv) Kujadili mchakato wa upangaji lugha;

v) Kujadili sera ya lugha nchini Rwanda na katika nchi za Afrika Masharikikatika zama za kidjiti na dunia ya utandawazi;

vi) Kujadili uhusiano wa lugha na jamii katika zama hizi za kidijiti;

vii) Kutathimini sera ya lugha ya Kiswahili Afrika Mashariki; na

viii) Kutathimini mchakato wa upangaji lugha ya Kiswahili katika nchi za Afrika Mashariki.

MODULI YA KUMI: Isimu Linganishi na Anthropolojia ya Kiswahili (Krediti 10)

Ufafanuzi

Moduli hii inakusudia kuwawezesha wanafunzi kubainisha na kufafanua mfanano wa kimofu na kimaana baina ya lugha za kibantu; na hivyo kuwawezesha wanafunzi kufanya ufafanuzi wa lugha za kibantu. Wanafunzi wanakusudiwa kubainisha elementi kuu za isimu historia na isimu linganishi, Utamaduni wa Waswahili, anthropolojia ya kiisimu, ikiwa ni pamoja na kulinganisha muundo wa Kiswahili dhidi ya lugha nyingine za Kibantu.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi katika moduli kama vile utamaduni wa Waswahili, nadharia za anthropolojia ya kiisimu, isimu historia, na isimu linganishi;

ii) Kuelezea mbinu za kufafanua lugha za kibantu;

iii) Kuchanganua uhusiano uliopo baina ya utamaduni, wazo, na lugha;

iv) Kuchambua muundo wa lugha ya Kiswahili kifonolojia, kisintaksia na kimofolojia;

v) Kutumia nadharia muafaka ili kudhihirisha kufanana na kutofautiana baina ya Kiswahili na Kinyarwanda; na

vi) Kufanya utafiti kuhusu maswala ya isimu linganishi na isimu anthropolojia.

2.8 EARLY CHILDHOOD DEVELOPMENT MODULES

Brief description and aims

This program aims at equipping student teachers with competences that enable them to teach Early Childhood Development related courses in pre-schools. In addition, the programme enables students to train pre-school teachers for their continuous professional development. It also prepares them to work with development organizations in the field of Early Childhood Development.

Learning outcomes

*B*y the end of this module, students should be able to*:*

i) Explain the concepts related to Early Childhood Development;

ii) Apply ECD principles in schools and beyond;

iii) Adapt personal interaction style to a given audience to advocate for children's rights and provide adequate services to all children;

iv) Mobilize parents and community get involved in their children's education;

v) Exercise autonomy and initiative in some activities at the level of ECD centre;

vi) Communicate effectively using written and spoken professional language in an ECD context.

Table 33: **Distribution of ECD modules**

S/N	Module	Year of study	Semester	Credits
1	Introduction to Early Childhood Development	1	1	15
2	Foundations and Theories of ECE	1	1	15
3	Early Childhood Growth and Development	1	1	20
4	Language and Literacy in ECD	1	2	20
5	Parents and Community Involvement	1	2	10
6	Special Needs and inclusive Education	1	2	20

7	Play, movement, music and drama for children	2	1	20
8	Mathematics and numeracy in ECD	2	1	20
9	Instructional Technology in ECD	2	1	20
10	Health Safety and Nutrition in Childcare Settings	2	2	15
11	Arts, Craft and Materials development	2	2	15
12	Data Use for children's learning	2	2	10
13	Child's Rights, Protection, and advocacy	3	1	15
14	Child, Family and Community	3	1	15
15	Leadership and management of Early Childhood Development Centers	3	1	10
Total credits				**240**

Module 1: Introduction to Early Childhood Development

Indicative content

The aim of this module is to introduce student teachers to the concept of early childhood development. The module encompasses mainly: History of the early childhood development; Trends, issues, and Services in ECD; Understanding child diversity; Understanding family diversity; Early childhood learning environment; Supporting Social-Emotional Development of the child; Current research and evidence-based practices in early childhood program policy and practice; and the development of early childhood teacher identity.

Learning outcomes

By the end of this module, students should be able to*:*

i) Describe the current trends and issues in the field of early childhood education;

ii) Critically evaluate ideas, concepts, information, and issues within the common understandings of the ECD;

iii) Apply Social-Emotional Development of young children theories;

iv) Carry out research and evidence-based practices to early childhood program policy and practice;

v) Exercise autonomy and initiative in some activities at a professional ECD teacher identity.

Module 2: Foundations and Theories of Early-Childhood Education

Indicative content

This module introduces students to the field of early childhood education. It encompasses the following topics: introduction to early childhood education; philosophical and sociological foundations of early childhood education; history of early childhood education, theories of early childhood education; policies and current trends in early childhood education.

Learning outcomes

By the end of this module, students should be able to:

i) Describe early childhood development,
ii) Explore the philosophical and sociological foundations of early childhood education,
iii) Describe history of early childhood education,
iv) Apply theories of early childhood education in school and beyond,
v) Work with others to bring about change, development and new thinking in relation to policies and current trends in early childhood education,

Module 3: Early Childhood Growth and Development

Indicative content

This module aims at making student teachers aware of the physical and psychological changes that occur in infancy and early childhood development. The content of this module includes the following topics: introduction to human growth and development (meaning of growth and human development, determinants of growth and development, factors influencing growth and development); periods of human development; aspects such as physical, cognitive, psycho-motor, social, emotional, moral, language, and personality development in infancy, early and middle childhood, adolescence, and adulthood and old age.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain a limited range of principles and concepts processes of human growth and development;
ii) Describe the periods of human growth and development in ECD activities;
iii) Analyze, evaluate and/or syntheses of ideas, concepts of the human developmental changes;
iv) Draw educational implications of the developmental changes and personality development during early childhood.

Module 4: Special Needs and Inclusive Education

Indicative content

The module equips student teachers with knowledge and understanding of special needs and inclusive education so that they develop an inclusive attitude toward early childhood education. The content of this module includes Special Educational Needs (SEN); Special Needs Education (SNE); Inclusive education; Influencers of SEN in early childhood (mental retardation, physical disability, visual impairment, behavioral difficulties, hearing impairment, etc.); The effect of disability on the early childhood learning; The society's attitudes towards early child with disabilities; Responding positively to early child with special educational needs.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the SEN related concepts;

ii) Critically analyze, evaluate and/or syntheses of ideas, concepts, information, and issues of Special Needs and Inclusive Education on the early childhood learning;

iii) Assess the society's attitudes towards early childhood learners with SEN;

iv) Value the early childhood learners with SEN.

Module 5: Parents and Community Involvement in Early Childhood Education

Indicative content

This module prepares student teachers to engage parents and community in the learning of their young children. It mainly covers the concepts related to parents and community involvement; the nature of parental and community involvement and partnerships; techniques to promote and encourage parental involvement and support of families; factors that hinder parental involvement; community mobilization techniques; roles and responsibilities of parents and community in ECE; strategies for working effectively with parents and communities.

Learning outcomes

By the end of this module, students should be able to:

i) Explain concepts related to parents and community involvement in ECE,

ii) Apply techniques to promote and encourage parental involvement and support of families,

iii) Devise measures to overcome factors that hinder parental involvement,

iv) Apply community mobilization techniques to involve parents in their children's education,

v) Devise strategies for working effectively with parents and communities.

Module 6: Play, movement, music, and drama for children

Indicative content

The aim of this module is to enable student teachers to use play, movement, music, and drama in the teaching and learning activities of young children. The content of this module includes mainly the following topics: Child plays (indoor and outdoor plays); Plays and games for child development; Safety issues in child's development; Values, purposes and goals of music for infants, toddlers, and preschool children; Basic elements of music (melody, beat, rhythm, and tonality); Development of appropriate methods and materials for young children; Music and movement resources for working with young children.

Learning outcomes

By the end of this module, students should be able to*:*

i) Describe the concepts related to child's play, movement, and drama;

ii) Develop and communicate ideas and opinions with strong arguments highlighting the importance of child play, movement and drama in his/her development;

iii) Select child's play, movement and drama;

iv) Use age-appropriate child's play, movement and drama for infants, toddlers and preschool children;

v) Examine autonomy and initiative to plan, present, and evaluate a music, movement and drama experience for young children.

Module 7: Instructional Technology in ECD

Indicative content

This module makes student teachers able to use ICT in ECD. It encompasses Information and Communication Technology (ICT) for early childhood development, early childhood digital teaching and learning, multimedia for teaching young children, technology for children holistic development, stimulating technology skills in young children.

Learning outcomes

By the end of this module, students should be able to:

i) Explore ICT tools and multimedia in ECD,

ii) Describe ways of digital teaching and learning in ECD,

iii) Apply technological tools for children's holistic development,

iv) Apply appropriate techniques to stimulate technological skills in young children,

v) Take personal responsibility for decision making about using multimedia in ECD.

Module 8: Language and Literacy in ECD

Indicative content

The aim of this module is to allow student teachers to develop language and literacy skills in early childhood learners. This module covers the following: The nature and functions of human language; Language development theories (Cognitivism, Behaviorism, Naturalism); Language acquisition during early childhood; Patterns of language use in early childhood; Notion of literacy skills; Importance of literacy in early childhood; Strategies for developing literacy to young children; Assessment of literacy skills in young children (speaking, listening, early reading and writing skills).

Learning outcomes

By the end of this module, students should be able to*:*

i) Describe the language development theories;

ii) Apply language development theories in ECD;

iii) Communicate effectively using written and spoken professional language in teaching language and literacy to young children;

iv) Assessment effectively literacy skills of young children.

Module 9: Mathematics and numeracy in ECD

Indicative content

The aim of this module is to allow student teachers to develop mathematics and numeracy skills in early childhood learners. The content that is covered in this module includes: The nature of mathematics; Basics of mathematical concepts (operations, elementary and spatial geometry, measurements, approximations, estimations, elementary statistics); Factors affecting the development of mathematical concepts in young children; Notion of numeracy skills; Importance of numeracy in early childhood; Strategies for developing numeracy skills in young children.

Learning outcomes

By the end of this module, students should be able to*:*

i) Describe the nature of mathematics and basics of mathematical concepts;

ii) Communicate ideas and opinions in well-formed arguments the factors affecting the development of mathematical concepts in young children;

iii) Use appropriately strategies to develop mathematics and numeracy skills in early childhood learner;

iv) Prepare assess activities of mathematics and numeracy skills of young children.

Module 10: Health Safety and Nutrition in Childcare Settings

Indicative content

This module aims at making student teachers aware of the health safety and nutrition conditions for the well-being of learners at early childhood stage. This module encompasses the following topics: Prenatal, post-natal child health and health needs for child's holistic development; Health conditions for smooth development process; Early detection of childhood illness and disease; Preventive and curative measures for the promotion of health practices; Safety considerations in ECD settings; Appropriate diet for infants, toddler, and pre-school children.

Learning outcomes

By the end of this module, students should be able to*:*

i) Describe the prenatal, post-natal child health, and health needs for child's holistic development;

ii) Critically analyze and evaluate health conditions for smooth development process of young children;

iii) Setting safe environment for smooth ECD services;

iv) Diagnose childhood illness and disease;

v) Recommend initiative in assessing preventive and curative measures to promote health practices in ECD settings;

vi) Recommend parents on an appropriate diet for infants, toddler, and pre-school children.

Module 11: Arts, Craft and Materials development

Indicative content

This module equips student teachers with the necessary skills to teach young children Arts and Craft**.** The content that is covered in this module includes: The concept and objectives of teaching Art and Crafts to young children; Visual and performing arts; Principles and elements of child Art; skills to be developed in children's arts; Appropriate Art and Craft activities in ECD; Integration of Art and Craft in other learning areas; Designing and using Art and Crafts instructional materials; Choice of supportive and creative toys that meet children's interest; Types of toys and materials; Preparing materials for different developmental areas and different age-groups; Assessment of children's Art and Crafts work.

Learning outcomes

By the end of this module, students should be able to*:*

i) State the rationale of teaching art and craft to young children;

ii) Apply the principles and use elements of child Art as well as Art and Crafts curriculum for early childhood;

iii) Use appropriately Art and Craft activities and materials to support children's holistic development;

iv) Integrate Art and Craft in other learning areas;

v) Choose initiative in assessing children's art and crafts work.

Module 12: Data Use for children's learning

Indicative content

The module aims at allowing student teachers to use data for informed decision making to improve children's learning. It contains the following topics: Importance of data for early childhood teachers; nature of data collected in preschools; Ways of collecting data in preschools; Data sources in preschools; Data analysis; Informed decision making; Use of data to improve children's learning.

Learning outcomes

By the end of this module, students should be able to*:*

i) State the nature and importance of data in teaching and learning young children;

ii) Collect and analyze children's data and report the results;

iii) Recommend informed decisions based on data to improve children's learning;

iv) Prepare planning in ECD context.

Module 13: Child's Rights, Protection, and advocacy

Indicative content

The module makes student teachers aware of the children's rights to protect and advocate for them. In this module, the following topics are coved: fundamental child's rights; the rationale for child rights approaches; child's rights versus child's responsibilities within the family, the community, and the school; international conventions and national laws relating to children's rights and welfare; child abuse and child neglect, principles of child protection in school and beyond; child safeguarding principles; advocating for children's rights.

Learning outcomes

By the end of this module, students should be able to*:*

i) Define children's rights, protection, and advocacy;

ii) Describe children's rights versus children's responsibilities within the family, the community, and the school;

iii) Communicate and present effectively reliable and coherent information to fight child abuse and child neglect;

iv) Prepare planning and advocate for child's rights;

v) Apply the principles of child protection in school and beyond;

vi) Defend with strong arguments child safeguarding principles in everyday life.

Module 14: Parents and community involvement in early childhood education

Indicative content

This module prepares student teachers to engage parents and community in the learning of their young children. The topics to be covered in module are mainly the following: Concepts related to parents and community involvement; the nature of parental and community involvement and partnerships; techniques to promote and encourage parental involvement and support of families; factors that hinder parental involvement; community mobilization techniques; roles and responsibilities of parents and community in ECE; strategies for working effectively with parents and communities.

Learning outcomes:

By the end of this module, students should be able to*:*

i) Explain key concepts related to parents and community involvement in children's learning;

ii) Devise measures to overcome factors that hinder parental involvement;

iii) Communicate ideas and opinions with well-formed arguments to mobilize the community for its engagement in children's learning;

iv) Apply techniques that promote and encourage parental involvement and support of families;

v) Recommend strategies for working effectively with parents and communities.

Module 15: Leadership and management of children center

Indicative content

This module aims at equipping student teachers with knowledge, skills and attitudes that allow them to lead and manage ECD centers effectively. It covers the following topics: Theories of motivation; Designing a motivating learning environment for children; communication for effective leadership; leadership skills for ECD center; management of skills for ECD center; monitoring and evaluation of ECD center activities.

Learning outcomes:

By the end of this module, students should be able to:

i) Recall the theories of motivation in running ECD centers;

ii) Design a motivating learning environment for children in the center;

iii) Lead effectively ECD center activities;

iv) Communicate effectively with different ECD stakeholders using written and spoken professional language;

v) Apply appropriate leadership and management skills in the center and beyond.

2.9 General modules

Module 1: General English

Indicative content

The module aims to develop year one students' communicative competence in English as a medium of teaching and learning in higher education. The focus is on the practice of writing, speaking, listening and reading geared towards the modules on offer in year one.

Learning outcomes

By the end of the module, students should be able to:

i) Produce accurate and coherent texts in English on variety of current topics;
ii) Select relevant reading materials to use in order to perform various assignments;
iii) Make an individual presentation in English on any current topic;
iv) Participate in group discussion in and outside class;
v) Locate the areas of English language difficulties among peers;
vi) Detect general and specific information from the intermediate English listening materials.

Module 2: Introduction to Information and Communication Technology

Indicative content

This module of study identifies the essential knowledge, skills, and attitude that all students need to be active lifelong learners in an information technology intensive environment. The computer skills standard course of study involves the development of skills over time. These skills become building blocks with which to meet the challenges of personal and professional life. The module is designed to form the foundation for continuous learning with introduction to ICT, ICT fundamentals, advanced MS Office/OpenOffice (word, excel, access and PPT), Use of the Internet for research (e-Resources, OERs & MOOCs, digital library, Ethics (plagiarism, copyright, privacy), security of the data, emerging trends such as collaborative tools (social media & cloud services), ICT for specific subject, Practice I related to ICT fundamentals, MS applications, and Internet and Practical II related to Collaborative tools, social media and cloud computing services.

Learning outcomes

By the end of the module, students should be able to:

i) Utilize basic knowledge and skills of computers in learning practices.
ii) Apply MS Office suite & Open Office in daily life activities.
iii) Use the internet for research and sharing information.
iv) Integrate ICT in learning of different subjects.
v) Adapt to ever changing innovations and use ICT skills in long-life learning.
vi) Use computers in numerical and financial calculation of day-to-day life.

vii) Use ICT in mitigating global issues like climate change, conflict resolution, and global peace building.

viii) Use ICT learning opportunities such as e-learning to foster knowledge and skills development.

Module 3: Entrepreneurship for Educators

Indicative content

This module aims to equip students with the needed skills to integrate some learning activities and approaches fostering entrepreneurial mindsets towards the creation of new ideas and creative solutions. It facilitates the development of an entrepreneurial mind-set and equips students with necessary cutting-edge knowledge and skills vital for generating value in a knowledge-based economy. The module is designed to teach students how to start and manage a successful new business. This module covers a variety of topics, including ideation, opportunity identification, business model development, funding and management of new ventures, innovation, operations, and growth management, exit strategies and successful planning, marketing strategies, project management and legal and ethical issues concerning new venture management.

Learning outcomes

By the end of the module, students should be able to:

i) Describe the opportunity to raise awareness of self-employment as a career option;

ii) Explain the pathways for becoming an entrepreneur in a wide array of settings including large organization, start-ups, universities, government, intermediaries, and society;

iii) Describe the process of planning, launching, and managing new business ventures;

iv) Analyze key factors that contribute to a successful business plan, including market research, financial forecasting, and organizational strategy;

v) Apply financial analysis tools to evaluate the financial performance of a business, make informed investment decisions, and manage cash flow effectively;

vi) Show leadership and management skills to effectively lead and motivate teams and drive business growth;

vii) Apply theory to practice by leveraging theoretical insights for the development of the innovative enterprise;

viii) Communicate effectively business plans to stakeholders such as investors, partners, and customers.

Module 4: Citizenship and Transformative Education

Indicative content

This module has been designed with the aim to foster active and responsible participation in democratic societies by developing knowledge, skills, and values related to civic education, integrity systems, human rights and citizenship education, conflict resolution and peace

education. Citizenship and transformative education engage examination of power changes, promoting ethical values, cultivating empathy and stimulating inclusiveness and diversity. The module stresses the importance of active learning, dialogue, and experiential opportunities that empower individuals to make informed decisions. It highlights key concepts such as identity, integrity, conflict, and peace. It focuses on personal and societal change by rising critical thinking and self-reflection.

Learning outcomes

By the end of this module, students will be able to:

i) Demonstrate an understanding of the concepts of citizenship, state-building, and national identity

ii) Highlight the dynamics of Rwandan history in connection with citizenship, state-building, and national identity

iii) Identify the mechanisms of promoting integrity in Rwanda

iv) Explain the major theories, evolution, and core characteristics of human rights

v) Identify the means of promoting and protecting human rights in Rwanda and beyond

vi) Express a high degree of autonomy and integrity

vii) Demonstrate full responsibility and respect for other people regardless of their origin, age, culture, religion, nationality, and gender.

viii) Apply models and various approaches to conflict resolution and peacebuilding.

PART III

BENCHMARKS FOR DIPLOMA OF EDUCATION

PART 3: BENCHMARKS FOR DIPLOMA OF EDUCATION

3.1 Aims and Rationale for the Programme of Diploma of Education

As Rwanda strives for achieving quality education for all, there are many vacancies in the domain of education today. More specifically, with the introduction of Nine-Year Basic Education (9YBE) and Twelve-Year Basic Education (12 YBE) programmes, the country is determined to find qualified and competent subject teachers in secondary schools (both lower and upper levels). Thus, the programme development has been motivated by the current teacher supply and demand in Rwanda. In fact, from 2018 to 2022, the government of Rwanda has constructed about 25,214 new classrooms surpassing the initial target of 22,500 classrooms. The aim was to phase out the double shift system and reduce the overclouded classes as well as reducing long distance for children to reach schools. In response, there is a justified need to train more teachers, especially of the level of Diploma, qualification required for lower secondary school. The content scope of the programme is tailored to produce teachers with the knowledge of subject, knowledge of the child, pedagogy and ICT literacy and integration in education to teach in Lower Secondary Schools. That is why the programme has been framed to include education foundations modules, subject-related modules, psychology, teaching methods and ICT literacy and integration in education.

The development of the programme of Diploma of Education has been informed by the specified needs of the lower secondary education sector in Rwanda. Graduates will be the change agents, young teachers with appreciation of modern teaching and learning approaches, clear vision and expertise who can carry forward the secondary schools of the region to international standards of excellence.

In this perspective, the programme responds to the Government's mission of building a knowledge-based economy. In addition to the Vision 2050 development plans, the Government's 2017– 2024 National Strategy for Transformation (NST) embraces the SDGs and focuses on three pillars: social transformation, economic transformation, and transformational governance. The overarching goal for the social transformation pillar is to develop Rwandans into capable and skilled people with quality standards of living, a stable and secure society. This will be achieved by the increase in the number of qualified teachers who can improve the citizens' welfare through a programmatic system of education.

To ensure that the programme tackles all the expected teacher competencies, the programme is made of four subject clusters, namely: education-related modules, subject-related modules, general modules, and school attachment/practice.

3.2 Objectives of the Programme of Diploma of Education

The Diploma of Education Programme intends to contribute to solving the problem of low rate of qualified teachers for lower secondary schools in Rwanda.

Thus, the programme objectives are to:

i) Develop students' competencies in the subjects of their specialization

ii) Develop students' pedagogical skills for the subjects they are qualify to teach

iii) Provide a comprehensive training background necessary for the students to become competent teachers for lower secondary education

iv) Develop the intellectual, professional and social competencies that will enable the students to become responsible leaders in their schools and the community

v) Develop the scientific character and capabilities of dealing with issues and problems in education and society

vi) Provide the students a rich basis for interest in further training in their areas of interests.

3.3 Learning Outcomes for the Programme of Diploma of Education

The purpose of the learning outcomes is to describe clearly what the learners should be able to demonstrate by the end of the programme or a module. Learning outcomes are statements of the knowledge, skills and attitude that a learner is able to demonstrate on the completion of a programme or module.

The HLIs will be required to compare the existing learning outcomes of their accredited education related programmes with these benchmarks and see what is missing or what should be redesigned or reformulated.

Based on the Ministerial order Nº001/MINEDUC/2021 of 20/10//2021 determining standards in education, the Higher Education Council programme development framework and the Bloom's Taxonomy learning outcomes are divided into the following:

i) Knowledge and understanding:

ii) Applied knowledge, understanding and practice

iii) Generic cognitive skills

iv) Communication, ICT and numeracy skills

v) Autonomy, responsibility and working with others

Thus, the following learning outcomes have been formulated, to be used as benchmarks for a Diploma of education.

Table 34: **Expected Learning Outcomes for Diploma of Education**

Knowledge and understanding	The graduate should be able to demonstrate systematic knowledge and understanding of: i) The subjects of their specialization ii) Some main theories, concepts and principles, and current issues in education iii) The evolving nature of teaching and learning iv) Code of conduct for professional teachers
Applied knowledge, understanding and practice	The graduate should be able to: i) Apply knowledge and understanding to facilitate teaching and learning process ii) Use basic and routine professional skills, techniques, approaches, methods and appropriate materials to effectively facilitate teaching and learning process iii) Plan how skills will be used to address different challenges

	in education
Generic Cognitive Skills	The graduate should be able to: i) Present and evaluate arguments on issues related to teaching and learning the subjects of their specialization ii) Use a range of approaches to solving defined and/or routine problems within their contexts. iii) Have command of analytical interpretation of a wide range of educational data
Communication, ICT and numeracy skills	The graduate should be able to demonstrate ability to: i) Communicate and present effectively reliable and coherent information using appropriate professional conventions and formats for a given context ii) Use appropriate technological tools, numerical and graphical data to measure progress and achievement of educational goals
Autonomy, responsibility and working with others	The graduate should be able to demonstrate ability to: i) Take some initiative and independence in facilitating teaching and learning professionally ii) Take some managerial responsibility to lead teaching and learning iii) Manage limited resources in the education sector iv) Work with parents and the wider community to support students' learning.

3.4 Translating Learning Outcomes into the Programme

The Diploma of Education qualification consists of 280 credits and is available to be studied on a full-time basis, and the programme duration is 2 years which is equal to four semesters. However, a current teacher needing to upgrade his/her education level/ or become qualified in the field of teacher education can be admitted in Holiday (School-Based) mode or distance learning. One additional year will be added to the duration of the programme for a student who enrolls in a Holiday (School-Based) mode and distance learning. Only in-service teachers are eligible to a Holiday (School-Based) and distance learning modes.

In the design or redesign of a Diploma of Education Programme, the higher learning institution (s) should consider the following structure as benchmarks for the structure of the programme.

Table 35: **Programme Structure for Diploma of Education**

YEAR	SEMESTER	CODE	MODULE	CU
ONE	**I**		Philosophical and Sociological Foundations of Education Subject 1 Subject 2 General English ICT	10 25 25 10 10
	Sub-Total Number of Credits per Semester			**80**
	II		Educational and Human Developmental Psychology Theories and Practice of Teaching and Learning Teaching Practice Subject 1 Subject 2 Entrepreneurship for Educators Citizenship and Transformative Education	10 10 5 25 25 5 5
	Sub-Total Number of Credits per Semester			**85**
TOTAL NUMBER OF CREDITS PER YEAR I				**165**
TWO	**I**		Curriculum Development and Instruction Subject Specific Teaching Methods (subject 1 and 2) Subject 1 Subject 2	10 15 30 30
	Sub-Total Number of Credits per Semester			**85**
	II		Subject 1 Subject 2 School attachment	10 10 10
	Sub-Total Number of Credits per Semester			**30**
TOTAL NUMBER OF CREDITS PER YEAR II				**115**
TOTAL NUMBER OF CREDITS PER DIPLOMA				**280**

3.5 Programme Description

3.5.1 Education Modules

Module 1: Philosophical and Sociological Foundations of Education

Indicative content

This module introduces the philosophical and sociological basis of education. It emphasizes the evolution of philosophical and sociological schools and its implication on teaching and learning process. It also enables the student to get a clear understanding of the relationship between the school as a social institution and the society. It further highlights education development from ancient times to the period of reformation and education in modern times. It discusses differences in education systems and policies in order to establish the basis for justifying the current changes in Education.

Learning outcomes

By the end of this module, students should be able to:

i) Explain concepts related to sociological and philosophical branches/schools and their implication on education.

ii) Analyse and synthesise the sociological and philosophical basis of education before drawing conclusions.

iii) Trace the educational development from medieval times to the post-colonial times,

iv) Discuss the sociological, philosophical assumptions and reasons behind certain educational policies and issues;

v) Argue logically, clearly and effectively with appropriate use of sociological and philosophical concepts adapted to a relevant context

vi) Identify the influences of family, school, neighborhood, and national characteristics on the educational system.

vii) Explain the social foundations of schooling at national, regional and international level

Module 2: Educational and Human Developmental Psychology

Indicative content

The module equips students with knowledge and understanding of human growth and development from conception to death. It highlights human development through pregnancy, birth, infancy, childhood, adolescence, and old age. It explains the concept of developmental psychology, principles, determinants, and theories of human growth and development. The module describes the human physical, cognitive, socio-emotional, personality and moral development at different stages of lifespan. Furthermore, it helps students to draw educational implications that are appropriate for every stage of human development. It deals also with the meaning and significance of educational psychology, its scope and functions, nature and types of learning, theories of learning and their application in classroom settings, the teacher personality and the students' learning, self-regulation and self-concept and their role in learning, and classroom management.

Learning outcomes

By the end of the module, students will be able to:

i) Discuss the concept and process of human growth and development.

ii) Evaluate different theories and stages of physical, cognitive, socio-emotional, personality and moral development.

iii) Design appropriate learning strategies to address various challenges across the developmental stages

iv) Establish the link between education and psychology.

v) Explain the relationship between teacher personality and student learning

vi) Analyse the contribution of psychology to teaching, learning, and assessment

vii) Evaluate the effect of learner self-regulation and self-concept on his/her learning.

Module 3: Theories and Practice of Teaching and Learning

Indicative content

This module is designed to develop learner's knowledge, and skills in theories, methods and practice of teaching and learning. It provides learners with key pedagogical concepts, learning theories with focus on contemporary theories and modern practices of learning, general teaching methods, pedagogical documents including scheme of work and lesson plan and their use in competence-based education. Learners will acquire understanding of the techniques that can be used in different situations and will enable learners to develop skills on effective teaching practice, how to prepare and deliver effectively a competence-based curriculum lessons in Rwandan frameworks.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the different theories and practices of teaching, learning and lifelong learning.

ii) Value the importance of good lessons preparations for learner's acquisition of expected competences.

iii) Design and effectively deliver lessons in competence-based curriculum using Rwandan frameworks.

iv) Apply different teaching and learning strategies for diverse learners

Module 4: Teaching practice

Indicative content

This module is designed to enable student teachers to get an overview of what happens in a school setting. The module will introduce students to the school environment. Through this module, students will visit one of the schools surrounding their campus whereby the school leaders will help them to tour the school environment and interact with experienced teachers who will share with them the benefits, experiences and challenges associated with the teaching profession. They will have the opportunity to observe at least one lesson in their subject of specialization as well as developing the field report about their evaluations.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the school environment;

ii) Explain the benefits and challenges associated with the teaching profession;

iii) Use the teaching practice experience to reflect on what it means to be a professional teacher;

iv) Produce a reflective report on the field observation.

Module 5: Curriculum Development and Instruction

Indicative content

This module is designed to develop learner's skills, knowledge and attitudes in the field of curriculum development and educational technology. It seeks to introduce learners with the concepts of curriculum, the importance of a curriculum, the theories and principles of curriculum design, factors that affect curriculum development, the steps and models of curriculum development, as well as implementation and evaluation steps of a curriculum. The module also introduces the learners to the concept of educational technology, types of educational technologies, interrelationship between learning theories and educational technologies, benefits and criticisms of educational technology, computer-aided instruction, Audio-visual/multimedia systems in education, e-learning, use of Open Educational Resources.

Learning outcomes

By the end of this module, the students should be able to:

i) Describe the concepts, principles, theories and models of curriculum development;

ii) Evaluate the strengths and weaknesses of the national curriculum to inform teaching and learning;

iii) Describe the factors influencing curriculum development process;

iv) Describe the concept of educational technology;

v) Use different technologies to facilitate teaching and learning process;

vi) Use Open Education Resources to enhance students' learning.

Module 6: School attachment

Indicative content

This module is designed to enable student teachers to apply the theories acquired in the classroom into the school real-life situation. The module also helps student-teachers to understand the teaching profession, its challenges and how they are addressed so as to get the school-life experience. This module covers contents such as: concept of school attachment, roles and responsibilities of stakeholders in school attachment, lesson preparation, delivery and assessment, use of data and record keeping to track students' progress, collaboration with parents and the wider community for improvement of students' learning outcomes.

Learning Outcomes

By the end of this module, students should be able to:

i) Describe the role of school attachment in teacher education;

ii) Appreciate the role of school attachment as a workplace learning experience;

iii) Apply principles and theories acquired in classroom into the school real-life context;

iv) Plan a lesson in their area of specialization;

v) Deliver a lesson in their area of specialization;

vi) Assess a lesson in their area of specialization;

vii) Use the school attachment experience to reflect on what it means to be a teacher;

viii) Collaborate with different stakeholders to enhance students' learning achievement;

ix) Produce a reflective report on conducted school attachment.

Module 7: Subject Specific Teaching Methods Modules

7.1 Physics Teaching Methods

Indicative Content

This module underpins the theory and practice of teaching Physics and aims at training effective secondary school teachers of physics. It explores the current context of the competence-based curriculum with specific focus on Physics subject at secondary school level. Different themes include the Nature of Physics, Innovative instructional approaches of teaching physics, Resources in teaching Physics, Assessment in teaching physics and Microteaching. A particular emphasis will be put on the integration of new technologies in teaching Physics to enable the prospective physics teacher to organize, manage and run online physics lessons as well as virtual laboratories.

Learning outcomes

By the end of the module, students should be able to:

i) Critically analyze the current secondary school physics competence-based curriculum;

ii) Critically reflect on the current secondary school physics competence-based curriculum;

iii) Acquaint with all pedagogical documents relevant to teaching and learning physics

iv) Apply innovative instructional teaching methods such as inquiry-based teaching, project-based learning in physics teaching and learning practices;

v) Select and use appropriate technologies in teaching and learning physics;

vi) Apply assessment techniques for in teaching and learning physics;

vii) Plan, deliver and critique a physics micro-lesson;

viii) Manage physics laboratory management;

ix) Integrate information technology in teaching and learning Physics.

7.2 Mathematics Teaching Methods

Indicative content

An overview of mathematics; historical and philosophical basis of mathematics; nature of mathematics and its relation to teaching; teachers conception of mathematics instructional practice; goals and objectives of teaching mathematics in Rwanda; mathematics learning instructional theories; analysis of Mathematics competence-based curriculum (CBC) in Rwanda secondary schools; mathematics content and practices; algebra and geometry processes; measurement and probability; data analysis; Mathematical processes; problem solving in mathematics teaching; techniques of teaching problem solving; resources in teaching mathematics; schemes of work and lesson plan development, 5Es model of instruction; classroom observation and micro-teaching; assessment in mathematics teaching; issues in teaching and learning mathematics as well as integrating technology tools.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the nature and philosophy of mathematics education;

ii) Explore a guided range of principles, techniques, practices, standards and methods associated with teaching and learning mathematics;

iii) Explain principles of mathematics competence-based curriculum (CBC) in Rwanda secondary school;

iv) Use effectively published research related to mathematics education for new teaching and learning styles;

v) Use of mathematics instructional material with respect to a given topic in the mathematics syllabus;

vi) Analyze different modes of assessing mathematics with respect to assembling instructional and student performance;

vii) Use of the information technology tools in teaching and learning mathematics.

7.3 Chemistry Teaching Methods

Indicative content

This module aims at equipping students with knowledge, skills, attitudes, and values to enable them to implement the chemistry competence-based curriculum (CBC) at secondary school level. The module covers the nature of science; development of chemistry concepts and procedures; basic principles and theories of teaching chemistry. It provides details on Technological, Pedagogical, and Content Knowledge (TPACK) and seeks to offer deep understanding of chemistry CBC and its implementation in Rwanda. The methodology and key aspects of chemistry teaching and learning are also developed. Furthermore, the module highlights resources for learning and teaching chemistry as well as planning for chemistry teaching and assessment. Lastly it emphasizes micro-teaching activities and practicum.

Learning outcomes

By the end of this module, students should be able to:

i) Explain theories of teaching and learning science;
ii) Explain the general purpose of teaching chemistry in secondary school;
iii) Identify and use appropriate chemistry teaching resources;
iv) Apply appropriate approaches and methods for teaching chemistry;
v) Plan and teach a micro-lesson and a real lesson in secondary schools;
vi) Analyze lesson plan models;
vii) Develop own teaching resources to conduct chemistry experiments;
viii) Use of the information technology tools as teaching and learning materials.

7.4 Computer Science Teaching Methods

Indicative content

The module aims to help students demonstrate flexible and interactive teaching styles in computer science by giving them the necessary knowledge and skills for computer science teaching methods. It focuses on the foundation of teaching computer science, the computer science curriculum of secondary schools in Rwanda, the 5Es instructional model, and aspects of computer teaching and learning, including interactive learning, questioning, Inquiry-based, Raising Questions, simulations, animations and videos, resources for teaching computer science, assessment of computer science teaching and learning at secondary schools, microteaching.

Learning Outcomes

By the end of this module, students should be able to:

i) Differentiate various teaching strategies and methods in computer science;
ii) Use different resources and practical activities to improve the teaching of computer science;
iii) Apply various teaching methods to improve the teaching and learning of computer science;
iv) Use a scheme of work, a lesson plan, evaluation of learning, and microteaching;
v) Develop lesson plans and assessment tools in computer science teaching;
vi) Use of the information technology tools in teaching and learning computer science;
vii) Take personal responsibility for decision making about appropriate teaching methods through microteaching.

7.5 Biology Teaching Methods

Indicative content

This module aims to equip students with knowledge, skills, attitudes, and values to enable them to implement the Biology Competence Based Curriculum (CBC) at secondary school level. The module covers the history and nature of science, philosophical foundations of teaching and learning science, biology CBC and its implementation in Rwanda, methods for CBC implementation in biology, key concepts and aspects (Questioning, Raising Questions, discrepant event, practical work, concept cartoons, contextualisation of learning, use of simulations, animations and videos) in biology teaching and learning, 5Es instructional model in biology lesson planning and delivery, resources for effective learning and teaching biology, designing assessment tools and planning for biology teaching and learning. It also exposes prospective teachers with skills for teaching through micro-teaching and micro-feedback.

Learning outcomes

By the end of this module, student should be able to:

i) Explain the history and the nature of science biology included;

ii) Discuss the philosophical foundations of teaching and learning science biology included;

iii) Apply various teaching and learning concepts, principles, methods and aspects/techniques for biology teaching and learning;

iv) Use appropriate biology teaching and learning resources;

v) Plan 5Es instructional model lessons and apply them in microteaching sessions;

vi) Develop lesson plans and assessment tools in biology teaching and learning;

vii) Practice teaching through micro-teaching and micro-learning and provide feedback.

viii) Use of the information technology tools in teaching and learning.

7.6 Geography Teaching Methods

Indicative content

The module aims to equip student-teachers with knowledge, skills and values to teach geography in secondary schools. This refers to familiarizing a Geography student-teacher with the school and classroom real life experiences and the whole process of teaching and learning before taking on the full range of responsibilities of the professional teacher. The module presents the qualities of a Geography teacher, recalls the strategies of class motivation and management, introduces students to appropriate and specific teaching methods and techniques of Geography and their challenges, and finally details the ways of geography lesson planning, preparation, delivery, and assessment.

Learning outcomes

Upon successful completion of the training, learners should be able to demonstrate ability to:

i) Demonstrate skills and knowledge of teaching geography in secondary schools;
ii) Prepare geography lessons that fit with learners' levels;
iii) Identify appropriate methods and teaching aids to teach geography;
iv) Apply effective strategies of class management and motivation;
v) Apply appropriate teaching and learning methods to deliver a lesson in geography;
vi) Identify and properly apply crosscutting issues in teaching geography;
vii) Elaborate a scheme of work and prepare a lesson in a competence-based approach;
viii) Use educational technologies including ICT in teaching and learning process;

7.7 History Teaching Methods

Indicative content

The module aims at equipping student teachers with competences to teach history in secondary schools. It introduces the students to essential qualities of an ideal history teacher. It also aims at familiarizing student-teachers with different theories of teaching and learning history, history curriculum and textbooks, use of history sources as a teaching resource, teaching sensitive and controversial topics, teaching large and disadvantaged classrooms and use of ICT in teaching history. The module details history lesson planning, preparation, delivery and assessment. Finally, microteaching aims at equipping the student teachers with teaching skills.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the qualities of an ideal history teacher;
ii) Diagnose the strength and weaknesses of different sources to teach history;
iii) Discuss the opportunities and challenges of history curriculum in the context of a competence-based curriculum;
iv) Plan, deliver and assess history lessons in a creative manner;
v) Use data to provide constructive feedback to students.
vi) Use of educational technologies including ICT in teaching and learning history.

7.8 Economics Specific Teaching Methods

Indicative content

This module aims at allowing students to teach effectively and efficiently Economics at secondary school level; to provide students with a comprehensive, critical overview of the historical, theoretical and practical dimensions of Economics teaching. It presents concepts and approaches in a learner-centered pedagogical orientation, of appropriate methodologies in teaching Economics. The course will equip students with basic knowledge of economics

education. The course spreads through areas like economics education in secondary school, scope of economics education, methods, and techniques of teaching economics. It will discuss the following items: Economics Education in Rwanda Secondary School, Planning the course, Evaluation strategies in economics, Qualities of a good and effective economics teaching and classroom management, Preparation of economics syllabus and pitfalls of syllabus construction, analyzes the different techniques and methods of teaching economics, the teaching aids in economics, the classroom for economics and the teacher of economics.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concept of economics and economics education;

ii) Explain Historical and philosophical bases of Economics teaching;

iii) Discuss the practical and theoretical problems facing the teaching of economics;

iv) Explain the approaches to the preparation of economics syllabus and enumerate the pitfalls of syllabus construction;

v) Present orally or in writing principles of teaching Economics to any audience;

vi) Describe the evolutions of teaching methods for economics;

vii) Apply appropriate theories in planning, organizing, and assessing economics teaching-learning process.

viii) Use the information technology tools as teaching and learning materials;

7.9 Entrepreneurship Specific Teaching Methods

Indicative content

This module aims at providing students with an understanding of concepts and theories to teach effectively and efficiently Entrepreneurship at secondary school. It will provide students with a comprehensive practical dimensions of teaching Entrepreneurship including the whole process from lesson preparation, micro-teaching, delivery and evaluation,

It will focus on the rationale for the teaching and learning of Entrepreneurship, concepts, and theories in teaching Entrepreneurship; Entrepreneurship competency-based curriculum, various methods, techniques and teaching resources used in teaching Entrepreneurship. Elaboration of scheme of work, lesson plan as well as assessment and microteaching

Learning outcomes

By the end of the module, students should be able to:

i) Explain principles of entrepreneurship competence-based curriculum;

ii) Apply entrepreneurship teaching methods and strategies through micro-teaching practices;

iii) Apply appropriate theories in planning, organizing, and assessing Entrepreneurship teaching and learning activities;

iv) Develop teaching materials to make learning more interesting and memorable for learners;

v) Use teaching materials to make learning more interesting and memorable for learners;

vi) Make independent decisions for selecting appropriate methods, techniques, and materials for teaching entrepreneurship;

vii) Use the information technology tools as teaching and learning materials;

viii) Create awareness on self-employment as a career option and enhance knowledge on starting and operating a successful enterprise.

7.10 Ubugeni Bwihariye bwo Kwigisha Ikinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho igamije gutegura abanyeshuri bazigisha Ikinyarwanda mu buryo bunoze mu mashuri yisumbuye. Kugira ngo ibi bigerweho, iyi mbumbanyigisho iha abanyeshuri ubumenyi, ubumenyingiro n'ubucyesha ku byerekeranye n'amateka, amahame, amahange n'ubugeni byo kwigisha Ikinyarwanda hakurikijwe integanyanyigisho ishingiye ku bushobozi. Iyi mbumbanyigisho isobanura mu buryo bwimbitse ibijyanye n'uburyo, ubuhanga n'ubugeni bukoreshwa mu kwigisha inshoza zitandukanye z'ururimi, ibidanago n'imfashanyigisho zikenerwa ndetse n'uburyo zikoreshwa, uburyo amasuzumabumenyi y'ururimi ategurwa akanakoreshwa, ndetse n'ibibazo bigaragara mu myigire, imyigishirize n'amasuzuma by'Ikinyarwanda. Ikindi, iyi mbumbanyigisho iha abanyeshuri ubumenyingiro ku byerekeranye n'integanyanyigisho, ndetse gutegura no gutanga amasomo y'Ikinyarwanda.

Intego z'imbumbanyigisho

Nyuma y'iyi mbumbanyigisho, abanyeshuri bazaba bafite ubumenyi, ubumenyingiro n'ubucyesha mu bijyanye no kwigisha indimi muri rusange, ndetse no ku ngingo zikurikira by'umwihariko:

i) Amateka, intego n'akamaro ko kwigisha Ikinyarwanda mu Rwanda, mu karere ndetse no ku isi hose,

ii) Amahange akoreshwa mu kwiga no kwigisha ururimi nk'ururimi kavukire, ururimi rwa kabiri, n'ururimi rw'amahanga, ndetse n'uburyo ayo mahange ahuzwa no kwiga no kwigisha Ikinyarwanda,

iii) Akamaro n'uburyo byo gukoresha ikoranabuhanga mu myigire n'imyigishirize by'Ikinyarwanda,

iv) Amahame, uburyo, n'ubugeni bwihariye bwo kwigisha Ikinyarwanda, no gutegura ibidanago bikoreshwa mu kwigisha hagendewe ku nteganyanyigisho ishingiye ku bushobozi,

v) Imfashanyigisho n'ibindi byose bikenerwa mu kwigisha no gutanga amasuzumabumenyi ku banyeshuri biga ururimi rw'Ikinyarwanda,

vi) Amahange y'iyigandimi n'ayo mu burezi akoreshwa mu mitegurire, imitunganyirize, n'imisuzumire y'imyigire n'imyigishirize by'Ikinyarwanda.

7.11 English Language Teaching Methods

Indicative content

The module aims to help students gain knowledge on modern language teaching methods and techniques and how they can be applied while teaching English as a foreign language. It focuses on some essential IT tools used for teaching English, the use of audio-visual tools to teach English as well as the teaching of English grammar in context.

Learning outcomes

By the end of this module, students should be able to:

i) Describe current methodologies and strategies for teaching English as a foreign language
ii) Use modern language teaching methods
iii) Use technology to develop learners' proficiency in English as a foreign language
iv) Articulate the methods and identify the materials to use in order to teach English as a foreign language
v) Simulate an English language teaching session using appropriate teaching methods
vi) Respond to the affective and cognitive needs of diverse learners of English
vii) Independently design English lesson plans and related teaching materials.

7.12 Didactique du français langue étrangère

Contenu indicatif

L'objectif général de ce module est de permettre à l'apprenant d'avoir des connaissances et des compétences, des attitudes et valeurs pour mettre en pratique le curriculum de français au Tronc Commun dans le cadre du CBC (competence based curriculum) et du cycle supérieur du secondaire selon l'approche communicative et l'approche actionnelle. Il s'inscrit donc dans la perspective de l'enseignement/apprentissage du français langue étrangère, qui est la nouvelle option adoptée après la réforme de l'enseignement au Rwanda de 2009 faisant du français seulement une langue enseignée et non plus une langue d'enseignement.

Les objectifs d'apprentissage :

À la fin de ce module, les étudiants seront en mesure de démontrer leur connaissance et leur compréhension sur la didactique du français, notamment sur les points suivants :

i) Relever et caractériser les différentes méthodologies d'apprentissage et enseignement du français à travers l'histoire;
ii) Expliquer l'importance de la langue française et de son enseignement au Rwanda;
iii) Expliquer les objectifs généraux de la classe de français ;
iv) Décrire les pratiques et les techniques fondamentales d'apprentissage et enseignement du FLE selon le CBC.

v) Décrire l'organisation générale du contexte d'apprentissage ;

vi) Comprendre l'importance du stage pédagogique.

7.13 Mbinu za Ufundishaji wa Kiswahili

Ufafanuzi

Moduli hii inakusudiwa kuwawezesha wanafunzi kufundisha Kiswahili kwa ukamilifu katika shule za sekondari. Aidha, inawapatia wanafunzi mtazamo wa kina na wa kihakiki kuhusu mielekeo ya ufundishaji wa lugha kwa ujumla kihistoria, kinadharia na kivitendo. Hivyo, moduli hii inawasilisha dhana na mikabala ya mbinu mbalimbali mwafaka za ufundishaji wa Kiswahili katika mwelekeo wa kumfanya mwanafunzi kuwa kitovu cha ufundishaji na ujifunzaji.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua mbinu mbalimbali ufundishaji na ujifunzaji wa lugha ya pili;

ii) Kujadili dhana muhimu katika ufundishaji wa lugha ya Kiswahili: andalio la somo, pango kazi, nadharia za ujifunzaji, mkabala, mbinu, shajara ya darasa;

iii) Kutathimini mbinu mbalimbali za ufundishaji lugha ya pili kwa ujumla na Kiswahili kwa umahsusi;

iv) Tathimini ya ufundishaji wa lugha ya Kiswahili katika mtaala unaoegemea katika uwezo;

v) Kuandaa masomo tofauti muafaka ya ufundishaji wa stadi nne za lugha;

vi) Kutumia nadharia, mikabala na mbinu za ufundishaji lugha ya Kiswahili kwa namna muafaka;

vii) Kuandaa kwa ufasaha somo la lugha na fasihi na tathimini yake;

viii) Kuandaa mpango kazi na andalio la somo kwa ufasaha;

ix) Matumizi ya zana za teknolojia ya habari kama nyenzo za kufundishia na kujifunzia.

7.14 Teaching Methods in Early-Childhood Development

Indicative content

This module aims at equipping student teachers with knowledge, skills, attitudes, and values that enable them to teach effectively early childhood learners. The module focuses on the following topics: Theories underpinning early childhood learning, methods and approaches of teaching and learning pre-school learners; Integrated thematic approach to teaching and learning in ECD; Field trip to observe live lessons in some of the best pre-primary schools; Microteaching.

Learning outcomes

By the end of this module, students should be able to:

i) Discuss the theories underpinning early childhood learning;

ii) Demonstrate ability to apply appropriate approaches and methods in teaching early childhood learners;

iii) Deliver effectively early childhood instruction in integrated thematic approach;

iv) Report orally and / or in writing on the lesson observation conducted in one of the best pre-schools and micro-teaching session;

v) Conduct a micro-teaching lesson;

vi) Use of the information technology tools as teaching and learning materials.

3.5.2 Physics Modules

Brief Description of the Programme Aims

The programme aims at training qualified physics teachers for the lower secondary school. It is a two-year programme designed to produce qualified physics teachers whose responsibilities include but not limited to preparing and delivering stimulating lessons, identifying and analyzing students' needs, strengths, and weaknesses, overseeing as well as setting and grading assessment. Graduates from the programme are expected to successfully complete 7 physics modules in addition to 4 core educational modules, 1 physics teaching method and 1 semester school attachment.

Learning Outcomes

By the end of this programme, students should be able to:

i) Demonstrate an understanding of the content of proposed physics modules in the programme;

ii) Establish the link between the content of physics modules and the secondary school physics curriculum;

iii) Acquire the theoretical and experimental knowledge of physics as well as pedagogical content knowledge;

iv) Analyze the physics secondary school curriculum;

v) Interpret physics syllabi to create lesson plans and educational content;

vi) Organize and manage physics laboratories and perform all experiments proposed in the O'level physics syllabus.

vii) Communicate scientific ideas clearly and effectively, such as describing how to solve problems utilizing scientific reasoning, and use of developmental quantitative methods.

Table 36: Distribution of Physics Modules

S/N	Modules	Year of Study	Semester	Credits
1	Introductory Mechanics	1	1	15
2	Experimental Physics Lab 1	1	1	10
3	Properties of matter & Thermodynamics	1	2	10
4	Waves & Optics	1	2	15
5	Modern Physics & Special relativity	2	1	15
6	Introduction to Electromagnetism	2	1	15
7	Introduction to electronics	2	2	10
Total Credits				**90**

Module 1: Introductory Mechanics

Indicative content

The module of introductory mechanics will introduce students to ideas and mathematical techniques used in understanding the behaviour of dynamical systems that obey Newton's Laws. It includes topics on vector analysis, physical quantities and measurement, kinematics and dynamics of a particle, dynamics of translation and rotation of a rigid body and conservation laws.

Learning outcomes

By the end of the module, students should be able to:

i) Describe the basic units on measurements for mass, length, time, temperature, and distinguish between scalar and vector quantities;

ii) Perform calculations to determine distance, velocity and acceleration in one dimension;

iii) Derive and apply the equations for an object traveling along a parabolic path;

iv) Apply Newton’s Laws of motion to solve problems in one –dimension;

v) Describe the dynamics of circular motion;

vi) Describe the principle of conservation of linear momentum and its application to collisions;

vii) Perform simple experiments of physical principles and interpret the results.

Module 2: Experimental Physics Lab 1

Indicative content

The purpose of this module is to ensure that physics students in the Diploma programme have basic laboratory and data analysis skills necessary for subsequent physics teaching. The module aims at enabling student teachers to relate the relevant theory to the experimental manifestation of the theory or principle. They will further participate in a variety of learning activities to allow them to become familiar with some more complex apparatus and give them the opportunity to learn the art of accurate recording and analysis of data, dealing with error

analysis, using instrumentation, constructing simple experiments, writing laboratory reports, group project work and oral presentation.

Learning outcomes

By the end of the module, student teachers should be able to:

i) Carry out basic experimental measurements with a Vernier Callipers, Micrometer Screw Gauge, electronic multimeter and other measurement devices;

ii) Apply appropriate safe laboratory practices;

iii) Establish a link between experiment and theory for key first year physics concepts in areas such as mechanics, optics, and thermal physics;

iv) Plot and analyse straight line graphs both manually and using excel;

v) Identify and explain sources of error in an experiment and estimate the associated uncertainty in a measured quantity;

vi) Produce a written report and deliver a PowerPoint presentation on the project work;

vii) Manage lab resources and attempt to make them use locally available materials for teaching physics;

viii) Manifeste positive attitudes towards learning physics by reducing fear and increasing their self-efficacy and enjoyment of learning physics.

Module 3: Properties of matter & Thermodynamics

Indicative content

This module describes the properties of solids, liquids and gases; force and energy between atoms and molecules; thermal and electrical properties of matter and the transport phenomena in gases. In addition, it gives an introduction to heat and thermodynamics, covering the following major topics: the equation of state for an ideal gas, heat transfer, kinetic theory of gases and the laws of thermodynamics.

Learning outcomes

By the end of the module, students should be able to:

i) Explain the different types of fluid flows and their applications

ii) Characterize solids using their mechanical properties

iii) Explain the different transport mechanisms in solids and gases

iv) Describe the thermodynamics processes and heat transfer;

v) Apply laws of kinetic theory of ideal to solving practical problems;

vi) Apply laws of kinetic theory and thermodynamics to solving practical problems.

vii) Perform experiments linking the theory to practical concepts

Module 4: Waves and Optics

Indicative content

This module aims at enhancing diploma students' knowledge in the areas of waves and geometrical optics. The module first considers the characteristic parameters of a forced, damped harmonic oscillator, and relates them to the characteristic parameters of wave propagation. It also discusses the propagation and reflection of waves, using waves on a stretched string as the model system. Longitudinal waves in solids, sound waves in gases are also discussed, followed by an introduction to geometrical optics, optical systems and physical optics.

Learning outcomes

By the end of the module, students should be able to:

i) Describe the wave motion and derive the wave equation;

ii) Describe the propagation of elastic waves in a solid rod and in a spring and solve related exercises/ problems;

iii) Derive the laws of reflection and refraction, diffraction and interference of light waves using the Huygens' and Fermat's principles;

iv) Use the Principle of Superposition for Waves to explain the phenomena of interference of waves, standing waves and resonance;

v) Explain the Classical Doppler effects and solve related exercises/ problems;

vi) Analyze the formation of images in spherical mirrors, thin – lenses and optical instruments and solve related exercises/problems;

vii) Interpret the principle of diffraction grating; determine diffraction patterns, resolving - power, and spectrums by diffraction gratings.

Module 5: Modern Physics and Special Relativity

Indicative content

This module introduces diploma students to the basic concepts of quantum mechanics, nuclear physics, and crystal structure. It further develops the theory and conceptual understanding of special relativity, inertial reference frames, time dilation, length contraction, paradoxes, principle of equivalence; basic quantum mechanics, wave-particle duality. and space-time from first principles, using four-vector and tensor notations, providing applications of the theory from the dynamics of point particles through to electrodynamic phenomena as viewed from different inertial frame of reference.

Learning outcomes

By the end of the module, students should be able to:

i) Explain postulates in Einstein Theory of Special Relativity and their implications including Proper Time and Proper Velocity;

ii) Explain concepts relating to the consequences of Special Relativity, the nature of space-time and related observables;

iii) Explain the basic concept of quantum theory (thermal radiation and Planck's postulate, particle like properties of radiation, wavelike properties of particles, models of atom);

iv) EXplain the basic concept of Schrodinger's theory of quantum mechanics;

v) Solve kinematics problems using postulates in Einstein Theory of Special Relativity;

vi) Analyze and solve wave-particle duality problem;

vii) Analyze and solve time-independent Schrodinger equation.

Module 6: Introduction to Electromagnetism

Indicative content

This module introduces diploma students to the basic concepts underpinning electricity and magnetism such as potential and field. It further helps student teachers to understand the relationship between electric and magnetic fields and to calculate the electrostatic and magnetic fields produced by static and moving charges in a variety of simple configurations. The module gives an introduction in electromagnetism with emphasis on the following topics: Electric fields and currents, magnetic fields and induction, simple electrical circuits, Maxwell's equations.

Learning outcomes

By the end of the module, students should be able to:

i) EXplain the basic concepts underpinning electricity and magnetism such as potential and field;

ii) Explain the central topics within the theory of electromagnetism, electric fields and currents, magnetic fields and induction, simple electrical circuits, Maxwell's equations and electromagnetic waves, electromagnetic phenomena;

iii) Describe basic physical laws and concepts in electricity and electromagnetism;

iv) Use fundamental laws and relations to solve problems in electricity, electromagnetism and draw sketches illustrating the physics in the problems solved;

v) Calculate the electrostatic and magnetic fields produced by static and moving charges in a variety of simple configurations;

vi) Compute the basic electromagnetic parameters.

Module 7: Introduction to Electronics

Indicative content

The module introduces diploma students to the basic knowledge required to understand, design, work, analyze and build several circuits, which will be of use later. It covers topics such as semiconductors and rectification, bipolar junction transistor, metal-oxide semiconductor transistors (MOST), amplifier and feedback amplifier, operational amplifier, logic fundamentals, digital and analogue signals, block diagram of telecommunication system. The module also helps students to familiarize with standard lab electronics and some common circuit elements such as linear and nonlinear, passive and active as well as

understand fundamental electronics concepts, including current/voltage dividers, impedance & load frequency response & transfer functions.

Learning outcomes

By the end of the module, students should be able to:

i) Explain some basic concepts of semiconductor physics;

ii) Describe the diode and transistor circuits as well as their applications;

iii) Explain basic input and output electronics of microcontrollers

iv) Explain the working principle of various amplifiers;

v) Discuss the working principle of devices using digital or analog signals;

vi) Discuss the characteristics, operations and applications of the diodes, bipolar junction transistors, field effect transistors, SCRs and operational amplifiers in electronic circuits;

vii) Describe different number systems and working of fundamental building blocks of digital circuits.

3.5.3 Mathematics Modules

Brief Description of the Programme Aims

The Diploma in education with Mathematics subject program aims to equip students with mathematics and pedagogical competencies required for qualified teachers in lower secondary schools.

Learning Outcomes

Students are expected to be able to:

i) Explain concepts related to mathematics subject and its applications;

ii) Discuss various concepts of mathematics effectively using examples and their physical/geometrical visualizations;

iii) Read independently and do in-depth study of various notions of mathematics;

iv) Model real-world problems mathematically and interpret the results appropriately;

v) Evaluate arguments on issues which are within the common understanding of mathematics;

vi) Use appropriate technological tools in teaching and learning mathematics topics.

Table 37: **Distribution of Mathematics Modules**

S/N	Module	Year	Semester	Credit unit
1	Fundamentals of Algebra	1	1	10
2	Geometry and trigonometry	1	1	15
3	Descriptive statistics and probability	1	2	10
4	Fundamentals of calculus	1	2	15

5	Linear Algebra	2	1	15
6	Real Analysis	2	1	15
7	Complex functions	2	2	10
Total				**90**

Module 1: Fundamentals of Algebra

Indicative Content

This module discusses the set and set operations, number systems, set of numbers (integers, real, complex), group, congruence, solving Diophantine equations, strategies for teaching algebra.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Explain key concepts related to set, group, and congruence;

ii) Distinguish various algebraic structures defined on existing sets of numbers

iii) Express an integer number into different bases

iv) Solve Diophantine equations;

v) Select best strategies to teach algebra related topics in secondary schools

Module 2: Geometry and trigonometry

Indicative Content

The module aims to provide the knowledge and skills about notions of coordinates, vectors, scalar product, dot product, cross product, box product, notion of length, norms, area and volumes; plan analytical geometry: point, straight line, circle and conics; solids or 3D: point, straight line, plan, and surfaces. It discusses also shapes: triangle, quadrilaterals, polygons and circles; Solids: cubes, parallelepipeds, pyramids, prism, tetrahedrons; cones, cylinders, Computation of length, area, and volume using calculus and linear algebra; computation of angles using trigonometry; Manipulation of shapes and solids using local materials applied to everyday life (architecture and arts).

Learning outcomes

By the end of the learning experience, students should be able to:

i) Explain concepts related to 2D and 3D shapes;

ii) Establish equations of lines and planes in 2D and 3D;

iii) Use scalar product to determine vector product to determine length, angle, area and volume;

iv) Use local material to physically represent various 2D and 3D shapes;

v) Use appropriate software and technological tools for representing 2D and 3D shapes

Module 3: Descriptive statistics and probability

Indicative Content

The module aims to discuss the descriptive Statistics: Frequency Distributions and their graphs; measures of central tendency. It also gives the knowledge and skills of probability: Basic concepts of probability and counting; Venn and tree diagrams, conditional probability and multiplication rule; the addition rules.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Explain concepts related to descriptive statistics and probability;

ii) Compute and interpret statistical parameters such as mean, variance and standard deviation;

iii) Use Venn or tree diagrams to represent possible outcomes of simple random experiment;

iv) Compute simple and conditional probability of events;

v) Apply descriptive statistics in organizing raw data;

vi) Use appropriate technological tools (at least MS Excel) for data presentation and analysis.

Module 4: Fundamentals of calculus

Indicative Content

The module aims at equipping students with skills in developing and applying recognized processes to solve mathematical problems. It introduces students to concepts of inequalities, principles of problem solving referring to George Polya, relation, functions and their representations, numerical sequences and series, polynomial, trigonometric, exponential and logarithmic functions.

Learning outcomes

By the end of the learning experience, students should be able to:

i) Explain key concepts related to functions, sequences and series;

ii) Apply George Polya algorithm to solve various problems notably those involving series and sequences;

iii) Examine the convergence of numerical series or sequences;

iv) Apply acquired knowledge and skills in solving problems of other sciences

Module 5: Linear Algebra

Indicative Content

The module aims to introduce students to the notion of vector space and linear transformations, matrices, operations on matrices, the inverse and determinant of a 2x2 & 3 x 3 matrices, and applications.

Learning outcomes

By the end of the learning this module, students should be able to:

i) Explain concepts related to vector spaces and linear transformations;

ii) Compute matrix determinants and apply it in solving linear equation systems;

iii) Apply matrices in solving real problems

Module 6: Real Analysis

Indicative Content

The module aims at equipping students with knowledge and skills on limit and continuity, the concept of gradient, differentiation and applications, integrals and applications, ordinary differential equations and applications.

Learning outcomes

By the end of the learning experience, students should be able to:

i) Explain concepts related to limit, continuity, integral and differential equations;

ii) Compute limit and derivatives of functions in one real variable,

iii) Integrate various functions in one real variable;

iv) Solve first and second order ODEs and related real-life problems

Module 7: Complex functions

Indicative Content

The module aims to equip students with knowledge and skills on complex functions and their applications in different disciplines of sciences. It contains the following topics: review of complex numbers and complex plane, polar form of complex numbers, powers and roots. Series, uniform convergence, power series, analytic function, representation of analytic functions, Taylor's and Laurent's series.

Learning outcomes

By the end of the learning experience, the students should be able to:

i) Explain concepts related to complex sequence, series and residue theorem;

ii) Prove and apply basic properties of holomorphic functions;

iii) Apply basic properties of holomorphic functions;

iv) Expand a complex function into Taylor and Laurent series;

v) Determine convergence of complex sequences and power series.

3.5.4 Chemistry Modules

Brief description of the Programme Aims

A Diploma of Education with Chemistry subject is a qualification intended to produce a teacher of chemistry at ordinary level of secondary schools. This diploma programme is designed to provide aspiring educators with the necessary knowledge, skills, and practical experience to teach chemistry effectively. The teacher should make sure that students construct their understanding of chemical phenomena and develop practical skills relevant to the chemistry career. In brief, the diploma holder in education with chemistry should be able to impart knowledge, skills and develop attitudes to ordinary level students so that they can develop chemistry literacy and proficiency and be able to solve chemistry related problems in everyday life.

Learning outcomes

By the end of this programme, students should be able to:

i) Explain the fundamentals and applications of chemical and scientific theories including those in inorganic, analytical, electrochemistry, organic and physical chemistry;

ii) Design scientific experiments as well as accurately record to analyze the results of such experiments;

iii) Carry out scientific experiments as well as accurately record to analyze the results of such experiments;

iv) Discuss the role of chemistry in our society;

v) Disseminate the results of scientific research relevant to chemistry orally and in writing to the general public;

vi) Explain the relevance and need of chemistry in addressing social and economic problems;

vii) Plan and teach chemistry lessons at secondary school.

Table 38: Distribution of Chemistry Modules

S/N	Module	Year of study	Semester	Credits
1	General Chemistry	1	1	15
2	Introduction to Laboratory Techniques	1	1	10
3	Inorganic Chemistry	1	2	10
4	Physical Chemistry	1	2	15
5	Organic Chemistry	2	1	15
6	Electrochemistry and Analytical Chemistry	2	1	15

	Transition Metal Chemistry	2	2	10
Total credits				**90**

Module 1: General Chemistry

Indicative content

The module aims at equipping students with competences in general chemistry and its applications in the physical world. It provides details on general laboratory safety rules, apparatus and equipment, and dimensional analysis referring to quantities and units used in chemistry. It also deals with matter and states of matter as well as electronic structure of atoms and the shapes of atomic orbitals (s, p, d and f) using building principle. Furthermore, it focuses on the effect of electronic structure on periodicity of the elements in the periodic table and chemical bonds. The module also provides knowledge on chemical and nuclear reactions as well as radioactivity. The practical sessions are concerned with reactions involving heating, drying, determination of specific heat, calcination, weighing and measuring volumes of chemical substances.

Learning outcomes

By the end of this module, students should be able to:

i) Explain security and safety rules in chemistry laboratory;
ii) Interpret the properties of elements from the periodic table;
iii) Explain atomic structure and concept of chemical bonding;
iv) Draw Lewis dot and line structures to represent chemical bonds;
v) Prepare common compounds and elucidate their properties;
vi) Calculate activity, decay rate, decay constant, half-life, and binding energy;
vii) Predict nuclear stability of atoms.

Module 2: Introduction to Laboratory Techniques

Indicative content

This module provides students with practical skills recommended for using the various apparatus, equipment and treating chemical products safely in chemistry laboratories. It explains first aid kits, laboratory safety signs, incident management, ways of measuring volume using different apparatus such as measuring cylinders, dispensing pumps, graduated pipettes, Pasteur pipettes, syringes and micropipettes. The module also focuses on measuring weight using analytical balances, methods of Heating using different apparatus including but not limited to heating mantles, hotplates, water baths, oil baths, sand baths, flames, and steam baths. It also deals with cooling using cold baths, setting up equipment for common reactions as well as various methods of filtration such as gravity filtration, filter paper, vacuum filtration, filter tip pipet and centrifugation.

Learning outcomes

By the end of this module, students should be able to:

i) Measure volume and weight using various measuring laboratory equipment;

ii) Heat and cool substances at desired temperature using different lab apparatus;

iii) Set up apparatus for carrying out common chemical reactions;

iv) Filtrate using various method such as gravity filtration, filter paper, vacuum filtration, filter tip pipet and centrifugation;

v) Carry out crystallization to purify solid substances;

vi) Measure physical constant such as melting point, boiling point and densities using appropriate laboratory apparatus;

vii) Set up apparatus for simple and fractional distillation experiments.

Module 3: Inorganic Chemistry

Indicative content

This module equips students with knowledge and practical skills to treat and use inorganic compounds to solve daily problems. The module deals with historical development of the periodic table, trends of properties in the periodic table (Ionization energy, electron affinity electronegativity, atomic and radii, reducing and oxidizing power, metallic/non-metallic characters, boiling and melting points). The module also emphasizes on acid/base characters and descriptive chemistry of representative elements as well as dangers associated with metal extraction and prevention measures. Furthermore, it also deals with organometallic compounds of the main group elements and molecular symmetry.

The practical sessions will be centred on identification and preparation of inorganic compounds and determination of the oxygen content of air.

Learning outcomes

By the end of this module, students should be able to:

i) Explain Brønsted and Lewis definitions of acids and bases;

ii) Establish electronic configurations using s, p, d, f orbitals for s & p block elements;

iii) Predict chemical formulae of compounds of s & p block elements based on valence;

iv) Write chemical formulae of compounds of s & p block elements based on valence;

v) Use chemsketch to draw inorganic compounds and reactions

vi) Explain the properties of the main compounds;

vii) Identify effective method for extracting metals;

viii) Interpret the trends of ionization energy, electron affinity, atomic radius; metallic and non-metallic character of elements in the periodic table

ix) Analyze industrial production of common inorganic compounds and their uses.

Module 4: Physical Chemistry

Indicative content

The goal of this module is to provide deep knowledge and understanding of physical chemistry and its real-life applications used to solve societal problems. It gives details on atomic theory, molecular theory, states of the matter, ideal gas law, chemical reaction, reaction rates, and integration of rate laws. The module also emphases on rate laws and equilibrium constants for elementary reactions, temperature dependence of rate constants, reaction mechanisms and catalysis. Also, the concepts of chemical kinetics and thermodynamics are studied. Furthermore, the module focuses on homogeneous and heterogeneous catalysis, reaction mechanisms, elementary reaction and molecularity of a reaction, the state of transition, the activated complex, the activation energy and principal methods to study the reaction rate. Practical sessions are centered on determination and quantification of heat, endothermic and exothermic reactions, spontaneous and non-spontaneous reactions as well as determination of rate of reactions.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of chemical kinetics and thermodynamics;

ii) Calculate the rate constants for first and second order reactions;

iii) Determine heat of reaction, combustion, hydration, fusion, vaporization, crystallization and enthalpy of formation;

iv) Predict the spontaneousness of a reaction;

v) Interpret the collision model of chemical reactions;

vi) Analyze factors affecting rate of chemical reaction;

vii) Explain the effect of temperature on the spontaneity of a chemical reaction.

Module 5: Organic Chemistry

Indicative content

The goal of this module is to equip students with deep knowledge and understanding of principles of organic chemistry and how they are related to real life phenomena. It focuses on general introduction to organic chemistry: chemistry of carbon, types of carbon bonds, types of carbon backbones & common types of isomerism in organic chemistry, orbital hybridizations, formal charges, formulas (Lewis, figure and stick, condensed). It emphasizes saturated hydrocarbons, unsaturated hydrocarbons, hydrocarbon derivatives. This module also focuses on the study of various organic functions including alcohol, aldehyde, ketone, carboxylic acid, amide, amine, nitrile, ethers, esters as well as their physical and chemical properties. Finally, it deals with aromatic chemistry.

Learning outcomes

By the end of this module, students should be able to:

i) Differentiate functions of organic compounds;

ii) Interpret the reactions and properties of alcohols and phenols, ketones, ethers and epoxides, amine, and aldehydes;

iii) Prepare different saturated and unsaturated hydrocarbons;

iv) Apply conversion of carboxylic acids to their derivatives to carry out related reactions;

v) Interpret the concept of aromaticity and the main properties of aromatic compounds;

vi) Use chemistry software to draw organic compounds and equation of reactions

vii) Identify suitable methods to prepare various compound belonging to different functional groups;

viii) Test the samples for the presence of functional groups.

Module 6: Electrochemistry and Analytical Chemistry

Indicative content

This module provides students with knowledge and competences of solving real life analytical and electrochemical problems. It explains aqueous solutions, conductivity, concentration and activity of ions in aqueous solution, oxidation number and its determination, redox reactions, balancing redox equations. The module also treats galvanic, voltaic, dry and electrolytic cells as well as corrosion. Also concepts such as acidity, alkalinity, pH, buffer solutions, solubility in polar and non- polar solvents, salts hydrolysis, gravimetric titrimetric analysis were not left behind. Finally, the module deals with preparation of the solutions as well as acid-base, complexometric and redox titrations. Practical sessions are concerned with conductivity, redox reaction, electrochemical cell, electrolytic cell and corrosion, preparation of standard solutions and buffer solutions, pH determination, gravimetric analysis, volumetric analysis, and various types of titrations experiments.

Learning outcomes

By the end of this module, students should be able to:

i) Prepare aqueous solutions;

ii) Construct electrochemical cells and secondary batteries;

iii) Apply electrolysis principles to carry out chemical reactions;

iv) Explain the functionality of batteries;

v) Analyze the causes of corrosion of objects made in metals;

vi) Explain concepts of aqueous solutions, acidity, alkalinity, pH and buffer solutions and solubility;

vii) Use the methods of gravimetric and titrimetric analysis of chemical samples;

viii) Carry out experiments concerning acid-base, complexometric and precipitation titrations.

Module 7: Transition Metal Chemistry

Indicative content

This module aims to equip students with knowledge and skills to explore the roles of transition metals for humans, their methods of extraction and identification. It focuses on general properties of transition metals and their origin, electronic configuration, variable oxidation states and consequences, study of the elements of the first series and other commonly used elements, definition, and nomenclature of complexes. The module also tackles structures of coordination compounds, stability of transition metal complexes. Finally, it emphasizes on extraction of transition metals from their ores as well as dangers associated with metal extraction and prevention measures. Practical sessions are concerned with demonstration of the reactions of transition metals, identification tests of transition metal cations, conditions for iron corrosion and redox titration.

Learning outcomes

By the end of this module, students should be able to:

i) Determine oxidation states and assign d-electron counts for transition metals in complexes;

ii) Explain the formation of alloys and their uses;

iii) Sketch the structures of various transition metal complexes using chemistry software

iv) Explain the occurrence, stability, physical and chemical properties, production and industrial applications of transition metals;

v) Extract the transition metals from their ores;

vi) Explain the structures, nomenclature, geometry of transition metals;

vii) Carry out the experiments related to the various reactions of transition metals;

viii) Analyze industrial production processes of common transition metals.

3.5.5 Computer Science Modules

Brief Description of the Programme Aims

The aim of this programme is to produce Diploma Computer Science teachers capable of using and teaching computing principles, concepts, techniques to design, implement, manage, maintain computing communication systems that address and provide solutions to various activities for the benefit of humanity. The students will get the knowledge and skills about various modules to prepare them for teaching in secondary schools.

Learning Outcomes

By the end of this program, learners should be able to:

i) Explain essential concepts, principles, and theories relating to computer science and software applications;

ii) Mode computer-based systems;

iii) Design computer-based systems;

iv) Implement computer-based systems;

v) Evaluate computer-based systems;

vi) Apply basic computer science theory and software development fundamentals to produce computing-based solutions;

vii) Develop computer software/ applications using modern platforms;

viii) Demonstrate a breadth and depth of knowledge in the discipline of computer science;

ix) Interpret computer science syllabi to create lesson plans and educational content.

Table 39: **Distribution of Computer Science Modules**

S/N	Module	Year of study	Semester	Credits
1	Data structures and Algorithms with C++	1	1	10
2	Computer networks and Information Security	1	1	15
3	Database and web Programming	1	2	10
4	Computer Systems and Maintenance	1	2	15
5	Object Oriented Programming with Java	2	1	15
6	Computer Graphics and Multimedia	2	2	15
7	Software Engineering	2	2	10
Total credits				**90**

Module 1: Data structures and Algorithms with C++

Indicative content

This module aims to give the student all the necessary knowledge and skills in data structures, algorithms, and object-oriented programming by using C++ language. The students will learn fundamentals of programming, including variables and Constant Declaration, data types, operators, and expressions; Logic Design: flowchart and pseudocode for algorithm design; Functions, Coroutine and Sub-programs, Library, and internal functions v/s User-defined functions. Parameter-passing mechanisms, returning result argument. The introduction to object-oriented paradigm with C++: Class, Object, Inheritance, Polymorphism, and data abstraction will also be discussed in this module. The learners will get the knowledge of linear data structures and their algorithm presentations: Arrays, Stacks and applications, Infix, Prefix and Postfix Expressions, Recursion, Queues, Pointers, Linked allocation, Linear Linked Lists, Circular Linked Lists, Doubly Linked Lists. This module will also discuss the concept of nonlinear data structures and their algorithm presentations: Trees, Graphs, and Multidimensional arrays. Finally, the module will also introduce different Sorting and searching algorithms.

Learning Outcomes

By the end of this module, learners should be able to:

i) Discuss the basic concepts of data structure and algorithms;

ii) Explain the basic data structures and manipulate them;

iii) Create programs that include various data structures involving arrays, linked lists, stacks, queues and trees;

iv) Implement sorting and searching algorithms using C++ programming;

v) Communicate effectively reliable and coherent information using appropriate professional conventions and formats various types of data structure;

vi) Taking some initiative and independence in choosing appropriate data structure while designing programs.

Module 2: Computer Networks and Information Security

Indicative content

The aim of this module is to help the students get the knowledge and skills to create a computer network to facilitate the accessibility and sharing of resources and information to anyone on the computer network as well as the information system. It discusses computer network basics, IP addressing, subnetting and supernetting knowledge, and Domain Name Space (DNS) - SMTP, FDP, HTTP, WWW. The module will also discuss information security: CIA Triad, Security Terminologies, Security Protocols, Security Policies and Management, Multilevel and multilateral Policies, Security Mechanisms, Security Design Principles, and architecture. It also discusses the concepts of threat analysis and risk assessment, Securing a System, Basic Techniques of Cryptography, Digital Signatures, Cryptanalysis, Network Security, Vulnerabilities, Attacks, Defenses, incident-handling and contingency planning, risk assessment and management.

Learning Outcomes

By the end of this module, learners should be able to:

i) Explain the fundamentals of computer networking;

ii) Differentiate the major components of computer networks, network layered approach, various protocols, modern technologies, and their application;

iii) Implement a simple LAN with hubs, bridges, WIFI Access Points and switches.

iv) Use basic tools, processes, and methods to ensure security of systems through a minimum of two hands-on assignments involving attack and protection in a virtual environment;

v) Apply cryptographic methodologies to maintain the Confidentiality, Integrity and Availability of data;

vi) Design secure systems using cryptographic techniques and network security protocols;

vii) Implement secure systems using cryptographic techniques and network security protocols

viii) Demonstrate various network security applications, IPSec, Firewall, IDS, Web Security, Email Security and Malicious software;

ix) Communicate effectively in a team environment to analyze security threats and implement solutions.

Module 3: Databases and Web Programming

Indicative content

This module aims to provide the students with the required technical skills to create high-quality, usable, accessible web applications using industry-standard technologies. It discusses the basic concepts of databases, data models and representation of data, and database functions. The concepts of database design: Database structure design issues, functional dependency, anomalies due to partial or transitive dependency, and theory of normal forms for improved database design will be discussed in this module. The module also discusses the Un-normalized Relations, Relations in 1st, 2nd, and 3rd Normal forms. RDBMS, Relational Algebra and Relational Calculus, introduction to DDBMS. The module will also discuss the Web design: Client-side/front-end technologies (HTML, Cascading style sheet (CSS), JavaScript) and server-side technologies (PHP Scripting Language, MySQL). Finally, the module introduces web design with a content management system (CMS).

Learning Outcomes

By the end of this module, learners should be able to:

i) Differentiate the basics of database management systems, databases, and their applications;

ii) Use a range of appropriate front-end web technologies to design dynamic websites that meet specified needs and interests;

iii) Develop web-based applications in PHP with some of the most important functionalities the language provides;

iv) Evaluate arguments on issues which are within the common understandings of various content management systems;

v) Demonstrate the ability to identify, select, plan and use web technologies to address societal problems through research and scholarships;

vi) Working with others in support of current professional practice under guidance to develop web applications.

Module 4: Computer Systems and Maintenance

Indicative content

This module aims to introduce the concept of computer systems, the basic building blocks of a computer system and their functions, and to provide hands-on skills in computer maintenance. The students will learn about data, information, binary number system, Input/Output devices, storage, control devices, Central Processing Unit. They will also learn the Memories, Data files: Random and sequential, Disk storage: track, sector, cluster, and surface. Boolean Algebra and digital logic: Rules, Theorems, Algebraic simplification, Karnaugh map, Logic gates as basic building blocks, Integrated Circuits, different levels of integration, and functional components of computers based on the Von Neumann architecture will also be discussed in this module. The maintenance will give the hands on diagnosing common computer hardware and software errors/problems, and their causes and

troubleshooting, assembling and dismantling computers, hard disk partitioning, operating systems and software installations. The student will learn the Safety and Ethical Use of Computers.

Learning Outcomes

At the end of this module, learners should be able to:

i) Discuss the structure, function, and characteristics of computer systems;

ii) Use Boolean algebra and the Karnaugh map as tools to simplify and design logic circuits;

iii) Carry out personal Computer hardware and software installation, configuration, and upgrading;

iv) Perform preventive maintenance, advanced diagnosis, and troubleshooting.

v) Analyze a given computer problem and apply a systematic scheme and method for computer maintenance;

vi) Develop a maintenance guide to be used in a computer workshop;

vii) Exercise personal responsibility and autonomy to work and deal with complex and novel situations in computer maintenance.

Module 5: Object Oriented Programming with Java

Indicative content

This module aims to equip the students with knowledge and skills in object-oriented programming with Java. The students will be introduced to Java programming and in-depth practice with OOP concepts, including Classes and objects, data abstraction, encapsulation, inheritance, and polymorphism. They will also deal with Files and connecting to databases, querying a database, and processing the results, updating data with JDBC. The notions of Exception Handling, Multithreading, GUI programming and applets. Containers: JFrame, JApplet, JDialog, Jpanel, an overview of AWT API and Swings components: JButton, JLabel, JTextField, JTextArea, simple applications will be discussed in this module. Learners will learn Layout management: Layout manager types, border, grid, and flow. Finally, the module will discuss the Applets: Inheritance hierarchy for applets, differences between applets and applications, the life cycle of an applet, and passing parameters to applets.

Learning Outcomes

By the end of this module, students should be able to:

i) Analyze problems and design solutions using object-oriented programming concepts and Java language features;

ii) Apply the object-oriented programming language to develop software, including programs utilizing multiple classes using the java programming language;

iii) Design event driven GUI and web related applications which mimic the real-world scenarios;

iv) Communicate effectively in a team environment to analyze and devise a Java based application;

v) Work together on hands-on activities in small groups at their own pace to enhance a sense of respect for each other regardless of socio-cultural differences hence supporting interpersonal respect and promoting national unity and harmony.

Module 6: Computer Graphics and Multimedia

Indicative content

This module aims to introduce well-rounded computer graphics and multimedia to the learners. It discusses the introduction to Computer Graphics, Display Devices and Graphics Hardware, Graphics Software, Color Theory and Color Models, 2D and 3D graphics, and Computer Animation. The module will help the learners to understand Multimedia Elements and Authoring Programs, Data Compression, Multimedia Operating Systems, and Multimedia Communication Systems. The module will give the Case Study: Digital Camera Manipulation, using a scanner to capture images, setting resolution and manipulation with the authoring tools. Learners will learn Scratch programming case studies: Writing games, animations, and stories using scratch. Finally, the module will discuss GIS and Computer graphics: Introduction to GIS, GIS applications, Design and manipulate maps with GIS software like ArcGIS and QGIS.

Learning Outcomes

By the end of this module, students should be able to:

i) Explain concepts in computer graphics and multimedia.

ii) Use a basic graphics API to create graphics applications of different types;

iii) Create multimedia into various applications;

iv) Integrate multimedia into various applications;

v) Use Scratch programming to program various applications in education;

vi) Apply GIS software to generate maps and analyze spatial data.

vii) Pursue the development of graphics techniques and their associated interactive tools right up to the current state of the art;

viii) Exercise personal responsibility and autonomy to develop a multimedia solution using graphics design authoring tools appropriate in the education system.

Module 7: Software Engineering

Indicative Content

This module aims to teach several important areas of software engineering, concentrating on the specification and design of software systems and project management. It discusses the Software Engineering Methodology and SDLC: Different methodologies, Prototyping, waterfall model, Iterative Spiral model, Rapid Action Development model, System Development Life Cycle, Brief introduction of various Phases of SDLC. The learners will get the knowledge about introduction to System Analysis and Design. The Role of the Systems Analyst, System Analysis. Information Gathering: The Tools for Information representation: Data Flow Diagram (DFD) will be discussed in this module. Learners will learn about Data Dictionary, Decision Trees, Decision Tables, and System Design. The concepts of Object-Oriented Development, System Testing and Quality Assurance, User Training,

Implementation and Maintenance will be discussed in this module. The module will also tackle the project Scheduling and Software: What is Project Management, Tools for Project Management. Finally, the notions of Computer Aided Software Engineering (CASE tools), Gantt chart, and pert chart will be discussed in this module.

Learning Outcomes

By the end of this module, students should be able to:

i) Discuss the basic Software Development Life Cycle models and Methodologies;

ii) Describe some main principles and practice of the development of software systems (broadly defined) including requirements specification, design, validation, implementation and evolution;

iii) Use basic tools and techniques when developing software systems;

iv) Take some managerial responsibility for the work of others within a defined and supervised structure to manage and maintain Software Project for ensuring good quality software with high reliability;

v) Evaluate arguments on issues which are within the common understandings of software quality assurance;

vi) Communicate and present effectively reliable and coherent information using appropriate professional conventions and formats while developing software projects.

vii)

3.5.6 Biology Modules

Brief Description of the Programme Aims

The Diploma of Education in Biology is a two-year programme that aims at producing qualified biology secondary school teachers capable to demonstrate the mastery of biology content knowledge, practical skills and professional skills and attitudes for teachers training qualified biology teachers for lower secondary school level. It is designed in a way that gives the prospective biology teachers to increase biology concepts understanding and enhance practical skills pertained to biology as well as professional career skills as well as daily life situation through exploration of various learning materials. Graduates from this programme have 7 modules of biology to complete, addition to the general modules of education, specific teaching method as well as school attachment.

Learning outcomes

By the end of this programme, student teachers are expected to:

i) Display an understanding and mastery of the content proposed in biology modules of this programme;

ii) Use acquired knowledge, skills and attitudes in the teaching and learning of biology at secondary school level;

iii) Demonstrate ability to connect biology in daily life and in the implementation of the curriculum;

iv) Use the knowledge and skills acquired in biology modules to solve problems encountered in life;

v) Organize practical sessions and support students to conduct practical works proposed in school syllabus;

vi) Contribute to socio-economic development using knowledge, skills and attitudes gained from modules of this programme;

vii) Interpret biology syllabi to create lesson plans and educational content.

Table 40: **Distribution of Biology Modules**

S/N	Module	Year of study	Semester	Credits
1	Cell Biology	1	1	10
2	Plant diversity, Structure and Function	1	1	15
3	Genetics	1	2	10
4	Animal diversity, Structure and Function	1	2	15
5	Human Biology and Elements of Ecology	2	1	15
6	Biology Laboratory Techniques	2	1	15
7	Diseases and public health	2	2	10
Total credits				**90**

Module 1: Cell Biology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of cell biology. It covers levels of biological organization, history of the cell theory, unifying theories in study of life; types and chemical identification of biomolecules; microscopy and cell fractionation; structure, ultrastructure and function of plant and animal cells and organelles; cell cycle, mitosis and meiosis; cell communication: signaling, apoptosis, tumors, and cancers.

Learning outcomes

By the end of this module, the students should be able to:

i) Describe macromolecules of life;

ii) Distinguish types of biomolecules;

iii) Differentiate types of cells and cell organelles in maintenance of life;

iv) Describe parts of the cell and cell organelles and link them with their functions;

v) Observe plant and animal cells using microscope;

vi) Explain the cell cycle and distinguish mitosis from meiosis;

vii) Explain process of cell signaling and communication;

viii) Explain the relationship between cell division, cell signaling and communication, tumor formation and cancers.

Module 2: Plant Diversity, Structure and Function

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of the diversity, anatomy, and physiology of plants. It focuses on brief description of principles of plant classification and nomenclature: artificial, natural, and molecular classifications; dichotomous keys; Non-flowering plants (characteristics, reproduction, life cycle, ecology and economic importance of Algae, Bryophytes and Pteridophytes); Gymnosperms and Angiosperms (characteristics, reproduction, life cycle ecology and economic importance); tissues and organs of plants; plant physiology (transport in plants, transpiration, photosynthesis, gaseous exchange, and seed germination).

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the principles of plant classification and nomenclature;

ii) Establish the heterogeneity and the evolution of plants from the algae to angiosperms;

iii) Describe non-flowering plants, gymnosperms, and flowering plants;

iv) Explain the life cycle in flowering and non-flowering plants;

v) Analyse the ecological and economic importance of plants;

vi) Distinguish plant tissues and organs from techniques of studying tissues and organs;

vii) Explain the mechanisms of transport in plants, transpiration, gaseous exchange, photosynthesis, and seed germination.

Module 3: Genetics

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of genetics and inheritance. It focuses on genetics concepts (gene, allele, dominance/recessive gene or allele, character, phenotype, genotype, monohybridism, and dihybridism); the chemical composition and properties of genetic materials; the mechanisms of DNA replication and its significance (the nature of the genetic code, relationship between the genetic code and the process of protein synthesis; Mendelian genetics; test cross; supplements to Mendel's experiments: incomplete dominance; co-dominance; sex-linked heredity; applications of genetics: crop and animal husbandry improvement; practical exercises related to genetics (monohybridism, and dihybridism).

Learning outcomes

By the end of this module, the students should be able to:

i) Explain key concepts of genetics and heredity;

ii) Describe the chemical composition and properties of genetic materials and explain the mechanisms of DNA replication and its significance;

iii) Relate the genetic code to the process of protein synthesis;

iv) Explain principles and laws of Mendelian genetics and their supplements;

v) Describe the process of meiosis in gene segregation;

vi) Solve problems using Mendelian laws and supplements of genetic inheritance;

vii) Appreciate any aspects pertaining to genetics and show awareness on the application of knowledge and skills about Genetics.

Module 4: Animal Diversity, Structure, and Function

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of animal diversity, anatomy, and physiology. It focuses on the principles of animal systematics; characteristics and classification of Protozoa, invertebrates (Porifera, Cnidaria, Platyhelminthes, Nematodes, Annelids, Arthropods Mollusks, Echinoderms) and vertebrates (fish, amphibians, reptiles, birds, and mammals); animal tissues; animal organ systems (skeletal, muscle structures, digestive, respiratory, circulatory, excretory, and coordination systems); animal physiology (digestion, respiration, excretion, homeostasis, and coordination).

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the principles of animal systematics;

ii) Characterise protozoa, invertebrates and vertebrates;

iii) Classify animals based on the external features;

iv) Present various types of animal tissues;

v) Describe animal organ systems: Skeletal, muscle structures, digestive, respiratory, circulatory, excretory, and coordination systems;

vi) Explain animal physiology: nutrition, digestion, respiration, excretion, homeostasis, and coordination.

Module 5: Human biology & Elements of Ecology

Indicative content

This module aims at enhancing knowledge, understanding, skills and attitudes of human biology and introduction to ecology. It focuses on origin and ancestry of man; shared features and differences between man and apes; hominid evolution, characteristics of hominid species; human anatomy (organs and systems) and physiology; social hazards (smoking, alcoholism, drug abuse); sexually transmitted diseases, and measures of prevention; ecological levels: individual, population, community, and ecosystem; ecosystem interactions and nutrient cycling; current environmental issues and solutions.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the perspective of human origin and ancestry;

ii) Discuss key anatomical similarities and differences between the great apes and humans;

iii) Explain transmission, consequence, and prevention of sexually transmitted diseases including HIV-AIDS;

iv) Describe the anatomy of human tissues and organ systems;

v) Explain the physiology of human tissues and organ systems;

vi) Differentiate ecological levels: individual, population, community, and ecosystem;

vii) Show the linkage between ecosystem interactions and nutrient cycling;

viii) Use case studies to analyze current environmental issues the Earth is facing and suggest adaptation and mitigation measures.

ix) Show awareness and concern of the adverse effects of smoking, alcoholism, drug abuse.

Module 6: Laboratory Techniques and Scientific Methods in Biology

Indicative content

This module aims at introducing scientific methods and laboratory techniques to students of biology. It focuses on safety guidelines and practices; designing an experiment with controls; design and carry out field observational study; write a method that can be followed by another investigator; techniques and technology used in biology laboratory (rearing laboratory animals; Microscopy, observation and drawing of various specimens; Collection, sampling, classification, preservation of plant and animal specimens; dissection of plant and animal specimens for gross anatomy observations; experiments to illustrate plant animal physiology; Preparation of culture media and growing microorganisms; observation of invertebrate and vertebrate ectoparasites and endo-parasites; microscopic observation of vertebrate embryonic stages; develop models that can be used in teaching biology related concepts; select and use interactive learning tools.

Learning outcomes

By the end of this module, the students should be able to:

i) Apply safety guidelines and practices;

ii) Design and carry experiments with controls field observational study;

iii) Apply appropriate techniques and technology used in biology laboratory;

iv) Sample, collect, classify, and preserve plant and animal specimens;

v) Design and conduct experiments in cell biology, anatomy, physiology, microbiology, ecology, developmental biology, and parasitology;

vi) Develop models, select, and use interactive learning tools.

Module 7: Disease and public health

Indicative content

This module aims at introducing students to microbiology and imparting them with the knowledge of epidemiology of infectious and non-infectious diseases of importance in Africa. It covers introduction to microbiology; types of diseases: infectious and non-infectious; microbial pathogens and diseases: bacteria, protozoa, fungi, and viruses; Evolution of harmful strains; Prevention and treatment of diseases; Immune system (innate and specific immune); Epidemiology of common infectious diseases in Africa; Social factors affecting good health: sanitation, drug abuse-antibiotics, alcohol, smoking, marijuana; Sexual education, behavior, and response.

Learning outcomes

By the end of this module, the students should be able to:

i) Explain the diversity and physiology of microorganisms;

ii) Distinguish types of diseases;

iii) Explain the evolution of harmful strains and the relationship between diseases and microbial pathogens;

iv) Select and elaborate appropriate measures to prevent and treat diseases caused by microbial pathogens;

v) Explain the components and functioning of the immune system;

vi) Make connection between patterns of incidence, and distribution of common infectious diseases in Africa;

vii) Explain social factors affecting good health.

3.5.7 Geography Modules

Brief Description of the Programme Aims

Geography encompasses all phenomena of the world we live in. The purpose of studying this programme is to ensure that qualifying student teachers of geography acquire the competences that will enable them to teach Geography modules tackling on the interaction of human, physical and environmental problems which affect our daily lives. They will be also equipped with the practical techniques and skills to apply in their teaching career in secondary schools.

Expected learning outcomes

By the end of this programme students should be able to:

i) Locate, explain and describe physical and human features on the earth surface and their interaction with the atmosphere;

ii) Assess the current national and global demographic and economic aspects and demonstrate their concerns about their social-economic impacts;

iii) Identify the earth's surface structure and dynamics, and their impact on landscape, environment and human activities;

iv) Examine the process of rural and urban spaces transformation, settlement, and the threats to their planning and development;

v) Analyze the local and global environment and engage in reflective thinking about environmental problems and sustainability and the policy instruments available to address them;

vi) Use appropriate methods and procedures to conduct fieldwork and suggest adapted solutions to identified problems based on empirical findings.

vii) Interpret geography syllabi to create lesson plans and educational content.

Table 41: **Distribution of Geography Modules**

S/N	Module	Year of study	Semester	Credits
1	Human Geography	1	1	15
2	Physical Geography I	1	1	10
3	Physical Geography II	1	2	15
4	Geography of Rwanda	1	2	10
5	Geography of continents	2	1	10
6	Environmental geography	2	1	10
7	Map work and photo interpretation	2	2	10
8	Rural and Urban geography	2	2	10
Total credits				**90**

Module1: Human Geography

Indicative content

This module aims at giving students a basic knowledge of concepts of human geography. It exposes the main aspects and approaches of political geography, economic geography, and population geography. This module aims at giving to the students a basic knowledge, skills, and attitudes to develop a deeper understanding of geography key concepts, its historical evolution and the interaction between man and environment. It also explores the main aspects of political geography and population geography. It also describes the main economic activities that are agriculture, industry, transport, tourism, and international trade. The module presents also the main issues related to contemporary issues and globalization since the modernization era with special emphasis on third world countries.

Learning outcomes

By the end of this module, students should be able to*:*

i) Explain geography and its evolution;

ii) Analyze the status of governments, the boundaries and subdivisions of states and nations and the ways that people and governments control and dispute space;

iii) Apply the techniques of measuring the demographic processes using the main demographic dynamics;

iv) Describe the main demographic models, theories and population policies;

v) Explain the keys aspects and branches of economic geography and put them in the Rwandan context;

vi) Describe the origin and evolution of main economic systems;

vii) Apply appropriate educational knowledge and skills to teach human geography.

Module 2: Physical Geography I

Indicative content

This module aims at providing to the students, deep knowledge and understanding of the universe and galaxies, notions of mineralogy, petrography, stratigraphy. It deals specifically with internal geodynamics of the earth as well as orogenesis. It provides a deep description of the external geodynamics of the earth. Additionally, this module provides theoretical and practical knowledge and skills of the field works.

Learning outcomes

By the end of this module, students should be able to:

i) Describe types of stars, galaxies and universe;

ii) Describe minerals and rocks as well as their physical and chemical properties;

iii) Identify economic benefits from minerals, rocks and landforms;

iv) Analyze internal structure and composition of the earth;

v) Describe internal and external geodynamics;

vi) Use effectively various teaching resources including geographical documents, maps, illustrations, internet, audio-vision documents and field data in teaching and learning processes;

vii) Use cost effective resources for learning and teaching Geology and Geomorphology.

Module 3: Physical Geography II

Indicative content

This module aims at providing to the students the basic knowledge of atmosphere and earth's movements and their consequences. It describes different elements of weather/climate. It also deals with soil forming factors and processes, physical and chemical properties of soils as well as soil catena and profile. It classifies soils at different scales and discusses the soil erosion and appropriate measures to deal with it as well as the economic importance of soils. It also describes the field work.

Learning outcomes

By the end of this module, students should be able to:

i) Show the position of the earth in the solar system and explain earth's movements and their consequences;

ii) Analyze the structure, composition and importance of the atmosphere;

iii) Describe different elements and factors of weather/climate and their interactions with other natural aspects;

iv) Describe the soil formation processes, soil components, properties and types as well as soil catena and profile;

v) Discuss different types of soil erosion and suggest the most appropriate measures to deal with it;

vi) Classify soils at different scales;

vii) Describe the field work;

viii) Use cost effective resources for learning and teaching climatology and soil science.

Module 4: Geography of Rwanda

Indicative content

This module aims at providing deep knowledge and understanding of physical aspects of Rwanda such as geological background, rocks, topography and landforms, climate, drainage, soils, and vegetation. It also focuses on the study of population, natural resources, the sectors of activities (primary, secondary and tertiary including agriculture, industry and mining, transport and communication, tourism, and the international trade, the consumption of goods and services and their spatial dimensions and variations. The module provides enough information on regional integration and international cooperation of Rwanda with other countries. It may have a look at the hindrance of Rwandan development and future perspectives of the country.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the physical aspects of Rwanda including geological background, rocks, topography and landforms, climate, drainage, soils; and vegetation;

ii) Identify the natural resources available in Rwanda and discuss their economic importance to the country;

iii) Describe Rwandan population and the techniques of measuring the demographic processes in Rwanda;

iv) Describe the main types of economic activities and their impact on the development of a country;

v) Analyze the existing interaction between different physical, human and economic aspects of Rwanda;

vi) Show the importance of political integration from economic/trade integration of Rwanda;

vii) Apply cost effective resources for learning and teaching geography of Rwanda.

Module 5: Geography of continents

Indicative content

This module aims at giving students in-depth knowledge of the seven continents of the world that are Africa, Asia, Oceania, North America, South America, Europe, and Antarctica. For each continent, it explores the physical, human, and economic aspects, and regional and international integrations of different countries within a specific continent.

Learning outcomes

By the end of this module, students should be able to:

i) Use the world map to describe the seven continents of the world and their countries;
ii) Analyze physical and human characteristics of the world continents;
iii) Identify the particularities of each continent compared to the others;
iv) Analyze the relationship and the cooperation between the continents;
v) Explain the process of settlement and population characteristics of the world continents;
vi) Explain the success factors of specific continents and causes of drawbacks of others;
vii) Apply educational skills in teaching and learning processes of Geography of continents;

Module 6: Environmental Geography

Indicative content

This module aims at providing to the students' deep knowledge and understanding of the main components of the environment, ecosystems, biomes of the world and their relationship. It helps the learners to understand biogeochemical cycles, problems of environmental degradation (pollution, climate change, ozone depletion, deforestation, desertification, hazardous wastes, natural and human made disasters) and best ways of addressing them. The module also deals with water resources and integrated water resource management (IWRM); environmental preservation for sustainable development; environmental education as well as environmental policies and guidelines.

Learning outcomes

By the end of this module, students should be able to:

i) Explain th cocepts of environment, ecosystems, and biomes;
ii) Identify the main components of the environment and their relationships;
iii) Explain the main causes and consequences of environmental degradation resulting from pollution, climate change, deforestation, desertification, hazardous wastes, natural and human activities driven disasters) and suggest the best ways of addressing them;
iv) Suggest the best practices for environmental protection and conservation for sustainable development;

v) Criticallya nalyse various policies, strategies and international conventions of environmental conservation and their implementation;

vi) Apply the cost-effective materials in teaching environmental geography.

Module 7: Map work and photo interpretation

Indicative content

This module helps the students to have basic knowledge of concepts and principles of cartography, map symbols, geographic coordinates, projection systems, and mapping including reading, analysis, interpreting a map and an image. It provides the techniques and methods to be used while interpreting a photograph and identifying physical and human features on an aerial photography. It exposes the students to the Remote Sensing techniques used to identify and monitor earth' surface phenomena with the help of satellites. It also provides to the students' basic principles and applications of GIS including ArcMap menus, working with ArcMap (shapefiles, datasets, layers), map projection and coordinate system, map data and layout view and tools, editing and graphic map elements.

Learning outcomes

By the end of this module, students should be able to:

i) Apply cartography and GIS principles in preparation, interpretation, and analysis of maps, aerial photographs, and satellite images;

ii) Extract and display various information from aerial photographs;

iii) Define and locate selected geographical features using different methods;

iv) Represent and visualize on a map the physical and human features.

v) Visualize through GIS and satellite images, the spatial distribution of natural and human features.

Module 8: Rural and urban geography

Indicative content

This module focuses on characteristics of rural and urban areas, rural and urban problems in developing and developed countries. It deals with the rural and urban development models and the role of rural and urban activities in the process of development with case studies of selected developing and developed countries. This module also focuses on the origin, types, characteristics, factors, advantages, and disadvantages of rural and urban settlements. It presents economic activities and relationships between rural and urban as well as peri-urban areas. A special emphasis is put on urban planning, sustainable cities and neighborhoods, urbanization of Rwanda and cities system and transformation.

Learning outcomes

By the end of this module, students should be able to:

i) Identify characteristics of rural and urban areas;

ii) Describe different types of rural and urban settlements;

iii) Identify current challenges that affect the global rural and urban areas especially in developing countries;

iv) Describe the process of rural and urban development;

v) Describe the implementation of rural and urban plans for development;

vi) Apply acquired knowledge to address the issues hindering the rural and urban development;

vii) Apply appropriate educational methods and techniques as well as teaching resources components to teach rural geography.

Module 9: Geography teaching methods

Indicative content

The module aims to equip student-teachers with knowledge, skills and values to teach geography in secondary schools. This refers to familiarizing a Geography student-teacher with the school and classroom real life experiences and the whole process of teaching and learning before taking on the full range of responsibilities of the professional teacher. The module presents the qualities of a Geography teacher, recalls the strategies of class motivation and management, introduces students to appropriate and specific teaching methods and techniques of Geography and their challenges, and finally details the ways of Geography lesson planning, preparation, delivery, and assessment.

Learning outcomes

Upon successful completion of the training, learners should be able to demonstrate ability to:

i) Apply the acquired knowledge and skills to teach geography in secondary schools;

ii) Prepare geography lessons that fit with learners' levels;

iii) Identify appropriate methods and teaching aids to teach geography;

iv) Use cost effective and appropriate teaching resources in delivering a geography lesson.

v) Apply effective strategies of class management and motivation;

vi) Properly apply cross-cutting issues in teaching geography;

vii) Elaborate a scheme of work and prepare a lesson in a competence-based approach.

3.5.8 History Modules

Brief Description of the Programme Aims

This variety of modules will help the student-teacher to develop competences of history while providing a critical understanding of social, economic and political aspects of different societies. Thus, history modules will analyse the contribution of historical periods such as Antiquity, Middle Ages, Modern Times and Contemporary History to modern society. History of different places including Rwanda, Africa, Asia and Europe will be analysed. Thus, student teachers will be equipped with knowledge and skills which will help them to effectively teach history in secondary schools.

Learning outcomes

By the end of this programme, students will be able to:

i) Explain a wide range of historical topics related to different periods and places;
ii) Apply internal and external criticism to primary and secondary sources;
iii) Collect evidence and write a historical piece;
iv) Propose strategies for fighting against discrimination and genocide denial;
v) Present historical information on different periods and places in a variety of formats to various audiences.
vi) Interpret history syllabi to create lesson plans and educational content.

Table 42: Distribution of History Modules

S/N	Module	Year of study	Semester	Credits
1	Introduction to history	1	1	15
2	Ancient history of Rwanda	1	1	10
3	History of Africa	1	2	15
4	Panorama of World History I	1	2	10
5	Panorama of World History II	2	1	10
6	Contemporary History of Rwanda	2	1	10
7	History of Genocides	2	1	10
8	Issues in Contemporary History	2	2	10
Total credits				**90**

Module 1: Introduction to History

Indicative content

This module aims at helping the students to explore a wide range of key historical concepts, topics, periods, and places. These include for instance first and second order concepts. This module also focuses on historical sources (oral sources, written sources, electronic sources, archaeological sources). The importance of auxiliary science of history (sociology, geography, linguistics, paleography, epigraphy, numismatics, and archaeology) is discussed. Subfields of history are underlined (social history, economic history, political history, environmental history, gender history, etc.). The module also gives an overview of main historical periods. It finds out what it means to be a historian. It analyzes theories (Great God Theory, Great Man Theory, Great People Theory, etc.) and methods in the study of history.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the importance of studying history;
ii) Critically analyze the main characteristics of the periods of history;
iii) Differentiate first order from second order concepts in history;
iv) Compare different theories of history;

v) DEscribe the advantages and disadvantages of various historical methods (internal and external criticism);

vi) Apply internal and external criticism to various sources of historical information;

vii) Present the main characteristics of the main periods of history to various audiences using different means of communication including ICT tools.

Module 2: Ancient History of Rwanda

Indicative content

The module focuses on the importance of different types of sources of the history of Rwanda (oral, non-written, written and audio-visual sources) the problems of Rwandan historiography, prehistoric industries in Rwanda, the settlement of the population in Rwanda, origin and expansion of Rwanda, Civilization of Ancient Rwanda (political, economic, social, religious and artistic organization).

Learning outcomes

By the end of this module, students should be able to:

i) Describe the role of different types of sources of the history of Rwanda (ubucurabwenge, ubwiru, ibisigo, ibyivugo, ibitekerezo, songs, onomastic, palynology, archaeological sources, etc.) and their historical value;

ii) Use prehistoric industries of the history of Rwanda to deconstruct prejudices related to the settlement of the population in Rwanda;

iii) Evaluate the achievements of Rwandan kings in the expansion of Rwanda;

iv) Analyze different components of Rwandan ancient civilization;

v) Present historical information on the ancient history of Rwanda in a variety of formats to various audiences.

Module 3: History of Africa I

Indicative content

This module focuses on the history of Africa from the beginning up to now. It comprises the following aspects of the history of Africa: the sources used to write the history of Africa, the prehistory, the Mediterranean Africa history before the coming of Islam, the empires of the Western Africa, the main kingdoms of central, eastern and southern Africa, the relations between Europe and Africa between 1500 and 1800, African exploration by Europeans, Africans' reactions to European presence, European domination of Africa including causes, colonial systems, decolonization process, and post-colonial period challenges and opportunities.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the sources of precolonial African history and their value;

ii) Analyze the civilization of African empires and kingdoms;

iii) Discuss the contribution of Islam to African continent;

iv) Discuss the role played by main African empires/kingdoms in Africa and their relations with other parts of the world;

v) Analyze the impacts of European presence in Africa;

vi) Assess challenges and socio-economic and political opportunities of post-colonial Africa;

vii) Present historical information on the history of Africa in a variety of formats to various audiences.

Module 4: Panorama of World History I

Indicative content

The module emphasizes on Ancient Mediterranean civilizations (Mesopotamia, Egypt, Hebrew, Greece, the Roman Empire, Christian and Islamic religions); Asian civilizations (Persia, China, India and Japan), Pre-Columbian civilizations (Maya, Aztecs, Incas); their expansion and impact on the world. It helps students to understand the role of arts in teaching history.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the contributions of the Mediterranean, Asian and Pre-Columbian civilizations to intellectual, artistic, political, social and cultural change on human society;

ii) Conduct a documentary research activity on ancient history;

iii) Apply historical methods to analyze documents related to ancient history;

iv) Present historical information on ancient history through arts based forms in a variety of formats to various audiences.

Module 5: Panorama of World History II

Indicative content

The module concentrates on the Middle Ages (early, high and Middle Ages) by describing Europe between the fall of Rome and the beginning of the Renaissance. It also deals with the modern times by discussing philosophical and political thoughts that shaped modern times (humanism, rationalism, Marxism, liberalism, neoliberalism, democracy, etc.). The module also discusses the protestant and catholic reformation, the contacts of Europe and the rest of the world, the age of Enlightenment). A particular attention is also put on contemporary topics namely Industrial, American and French revolutions, world wars and their impacts on human society.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the main events and changes of the medieval and modern societies;

ii) Analyze the political, economic and intellectual developments in the medieval and modern periods;

iii) Discuss the contribution of Industrial, French and American revolutions on human society;

iv) Assess the impact of World Wars on human society;

v) Present historical information on medieval, Modern Times and contemporary history in a variety of formats to various audiences.

Module 6: Contemporary History of Rwanda

Indicative content

The module of Contemporary history of Rwanda focuses on Rwanda from the mid-19th century up to 1994. It deals with European exploration of Rwanda, reactions of Rwandans to European presence, German rule in Rwanda (1897-1916), establishment of missionaries in Rwanda and its impact on Rwandan society, the causes and effects of the First and Second World Wars on Rwanda, Belgian administration in Rwanda, the changes of the 1950s and early 1960s; Post-colonial Rwanda: First republic, Second republic (data on achievements and challenges) and the Liberation War.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the causes of European presence in Rwanda;

ii) Analyze, evaluate and present the impacts/effects of colonial rule on Rwandan society;

iii) Use data to discuss the social, economic and political transformation of post-colonial Rwanda;

iv) Present historical information on contemporary history of Rwanda in a variety of formats to various audiences.

Module 7: History of Genocides

Indicative content

This module aims at providing a deep understanding of the twentieth century genocides with emphasis on the Herero genocide, the Cambodian genocide, the Holocaust, the Bosnian genocide and the genocide against Tutsi, and the ways of comparing those four cases. It helps students to devise strategies to fight genocide denial.

Learning Outcomes

By the end of the module, students should be able to:

i) Explain why teaching genocides is a sensitive topic;

ii) Explain various types of prejudices;

iii) Compare genocide to other crimes against humanity;

iv) Describe different steps, causes and consequences of genocide;

v) Compare and contrast different twentieth genocides;

vi) Design a project to fight against prejudice and genocide denial;

vii) Present historical information on history of genocides in a variety of formats to various audiences.

Module 8: Issues in Contemporary History

Indicative content

This module is intended to provide students with a deep understanding of major issues that have influenced the world and went at the centerstage of contemporary history. These include History of international institutions (European Union, United Nation Organisation and African Union), the Cold War, Women and gender history; Religion and social change; Environmental history and sustainable development.

Learning Outcomes

By the end of this modules, students will be able to:

i) Explain the history of some international institutions (Eg: European Union, United Nation Organisation, and African Union, East African Community);

ii) Analyse the causes, course and implications of the Cold War history;

iii) Compare how historical events impact women and men;

iv) Discuss the role of religion and social change;

v) Explain the main themes of environmental history and sustainable development;

vi) Present historical information on issues in contemporary history in a variety of formats to various audiences.

3.5.9 Economics Modules

Brief Description of the Programme Aims

A Diploma in Economics provides learners with a foundational understanding of economic principles, theories, and concepts. It equips students with the understanding of how economies function, enabling them to analyze and make sense of economic phenomena.

At the end of the program, the learners will be equipped with necessary skills to demonstrate core micro-economic terms, concepts, and theories; describe how economic trade-offs and social values impact public/private policy and apply mathematical algebra in solving

economic and financial problems. Additionally, the learner will have analytical thinking skills.

Learning outcomes

i) Explain fundamental economic concepts, theories, and models, including microeconomics, macroeconomics, and various specialized areas within economics;

ii) Use analytical and critical thinking skills to analyze economic problems;

iii) Use quantitative methods such as statistical analysis, economics, to analyze economic data;

iv) Develop skills in gathering economic data, and undertaken economic research project

v) Analyse the economic issues, debates, and current events

vi) Interpret economics syllabi to create lesson plans and educational content.

Table 43: Distribution of Economics Modules

S/N	Module	Year of study	Semester	Credits
1	Foundations of Economics	1	1	10
2	Mathematics for Economists	1	1	15
3	Introduction to Public Finance	1	2	10
4	Statistics for Economists	1	2	15
5	Principles of Microeconomics I	2	1	15
6	Principles of Macroeconomics I	2	1	15
7	Fundamentals of Econometrics	2	2	10
Total				**90**

Module 1: Foundations of Economics

Indicative content

The module will cover key aspects in fundamentals of economics aspects such as the pricing system, game theory, marginal analysis, demand, supply and elasticity, government intervention in the market, GDP, unemployment and inflation, production and costs, exchange rate and international trade, market structure, institutions and modern economic growth, environment and the industrial revolution, historical perspectives, and emerging issues

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the key concepts in economics;

ii) Describe economic trends, institutions, and policies, especially in the context of business and industry-related problems and issues;

iii) Describe the basic economic problems through the application of simple theoretical models;

iv) Apply economic analysis to everyday problems in real world situations.

Module 2: Mathematics for Economists

Indicative content

The module will cover the item in mathematics for economists such as review of elementary concepts: sets, functions and algebra , linear equations (analysis, applications and simulation); simultaneous linear systems (analysis and applications); quadratic functions (analysis and applications); non-linear functions (analysis, applications and simulation); univariate calculus (analysis and applications); multivariate calculus (applications); unconstrained optimization (analysis and applications); constrained optimization (applications).

Learning Outcomes

By the end of the module, students should be able to:

i) Apply appropriate techniques to solve problems with calculus and linear algebra.
ii) Interpret model economic questions as mathematical problems.
iii) Represent economics models using matrix algebra and calculus.
iv) Generate the comparative statics from optimization problems, using various techniques.

Module 3: Introduction to Public Finance

Indicative content

The module will cover key aspects of introduction to public finance such as: Introduction to public finance and private finance; size and structure of the public sector in Rwanda, government revenues, public expenditure and borrowing (internal and external), deficit financing, budget cycle and politics of the budgetary process, planning and budgeting in the public sector; budgeting and performance evaluation in the public sector organizations; techniques of budgetary and fiscal analysis; capital budgeting and debt management; public investment: cost-benefit analysis, qualitative CBA, effectiveness analysis, multi goal analysis; public–private partnership: modalities, financing, risk allocation and negotiation; relationship between the economy and the public budgeting; introduction to capital market and money market, valuation of the financial instruments, Rwandan financial system.

Learning Outcomes

By the end of the module, students should be able to:

i) Explain how public budgeting fits into the macroeconomic framework.
ii) Explain costs and different ways of measuring them and how costs are used in public budgets.
iii) Describe the relationship between the global economy, the financial market, and the government fiscal policies.
iv) Analyze the impact of political, economic, and organizational factors on budgetary decision-making through case study assignments and the final paper.

Module 4: Statistics for Economists

Indicative content

The module will cover the item in Statistics for economists like: Introduction to Statistics, descriptive statistics, elements of probability, elements of statistical inference, random variables; distribution of sampling statistics, statistical inference, normal, binomial and poison distributions, correlation and regression analysis and hypothesis testing.

Learning Outcomes

By the end of the module, students should be able to:

i) Demonstrate an understanding of non-parametric methods, elementary sampling theory and design of experiment;

ii) Apply correlation and regression analyses models to data;

iii) Solve economic problems using standard statistics;

iv) Apply the statistics knowledge in real life.

Module 5: Principles of Microeconomics I

Indicative content

The module of principles of microeconomics I will focus but not limit to problem of scarcity and choice, demand, elasticity of demand and supply, theory of consumer demand, and indifference curve analysis.

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the concept of opportunity cost and its different types;

ii) Explain the role and limitations of price mechanism;

iii) Analyze the central problems facing the economies of the world;

iv) Draw the various shapes of production possibility curves (PPC).

Module 6: Principles of Macroeconomics I

Indicative content

This course introduces economic analysis of aggregate employment, income, and prices. Topics include major schools of economic thought; aggregate supply and demand; economic measures, fluctuations, and growth; money and banking; stabilization techniques; and international trade. Upon completion, students should be able to evaluate national economic components, conditions, and alternatives for achieving socioeconomic goals, the circular flow of income and expenditures, fiscal, and monetary Policies.

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the concepts of scarcity, choice and opportunity cost and apply these concepts to the analysis of the workings of a market economy.

ii) Describe the importance of interrelationships among consumers, government, business, and the rest of the world.

iii) Analyze the process of how the nation's output of goods and services is measured through the national income and product accounts

iv) Illustrate clearly the specific roles and functions of monetary and fiscal policy in the economy

v) Explain the process of how fiscal policy is enacted and how its functions – taxation and spending – are designed to achieve the goals of equilibrium between aggregate demand and supply.

Module 7: Fundamentals of Econometrics

Indicative content

This course is basically an introductory course on econometrics. The topics covered include the econometrics analysis, single-equation (regression models), normal linear regression model and practical aspects of statistics testing, two-variable regression Model: The Problem of estimation and two-variable regression analysis

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the key concepts of econometrics;

ii) Expalin how comparative advantage provides the basis for gains through trade;

iii) Describe the macro economy using aggregate demand and aggregate supply analysis;

iv) Explain monetary and fiscal policy options as they relate to economic stabilization in the short run and in the long run;

v) Apply econometric techniques to solve economic problems.

3.5.10 Entrepreneurship Modules

Brief Description of the Programme Aims

The main objective of the advanced diploma in entrepreneurship education programme is to equip learners with knowledge and intensive professional skills in the subject. It also provides learners with knowledge and skills related to starting and running their own businesses and also teaching entrepreneurship subjects in ordinary level of secondary education. It is designed to equip aspiring entrepreneurs with the tools necessary to succeed in today's competitive business environment. The program covers subjects in entrepreneurship, business communication, finance and accounting as well as networking and negotiation.

Learning outcomes

By the end of this program, students should be able to:

i) Build professional networks and establish strategic partnerships,

ii) Explain the significance of relationship with stakeholders, suppliers and customers,

iii) Identify and assess basic business risk and develop strategies to mitigate them,

iv) EXplain key concept, theories and principles of entrepreneurship including market dynamics, business model and innovation.

v) Interpret entrepreneurship syllabi to create lesson plans and educational content.

Table 44: Distribution of Entrepreneurship Modules

S/N	Modules	Year of study	Semester	Credits
1	Fundamentals of Entrepreneurship	1	1	15
2	Leadership and Management	1	1	10
3	Creativity and innovation in organizations	1	2	10
4	Accounting for Entrepreneurs	1	2	15
5	Business Communication	2	1	10
6	Financial management	2	1	10
7	Business Law and Taxation	2	1	10
8	New Venture Creation	2	2	10
Total				**90**

Module 1: Fundamentals of entrepreneurship

Indicative Content

The module of fundamentals of entrepreneurship introduces students to the world of entrepreneurship and related concepts, discusses the key features of entrepreneurs as well as techniques. It covers units such as Introduction to Entrepreneurship, Entrepreneurial traits and characteristics, Entrepreneurship tools and techniques and Entrepreneurship mindset.

Learning Outcomes

By the end of the module, students should be able to:

i) Explain the concept of entrepreneurship and what it takes to be an entrepreneur,

ii) Evaluate major challenges entrepreneurs face and how entrepreneurial opportunities are exploited in different markets,

iii) Apply the tools and techniques acquired to create viable and sustainable businesses,

iv) Exhibit interpersonal, teamwork, and communication skills.

Module 2: Leadership and management

Indicative content

This module offers students an opportunity to gain an enhanced understanding of leadership applications in the business context with required managerial skills. It aims at developing

knowledge and understanding of both theoretical and practical managerial systems and its application for the success of any business institution. The study area would include evolution of management thoughts, management styles, analysis and design, leadership theories and models necessary for a successful leader.

Learning outcomes

By the end of this module, students should be able to:

i) Design management procedures to choose the leadership style suitable to the context,
ii) Critically assess existing effectiveness of leadership and management in organization,
iii) Describe the role of management and leadership in today's business environment,
iv) Synthesize the leadership philosophy and models so as to adapt them to the organizational conditions.

Module 3: Introduction to creativity and Innovation in Organizations

Indicative content

This course aims at clarifying the concepts relative to innovation and creativity. Further, it offers the learners practical toolkit to both understand and more reliably harness innovation in organizations and personal projects. The course itself also has a focus on these tools, with a range of modern materials, delivering a fun and memorable experience. The module will cover aspects such as Introduction to creativity, Introduction to Innovation, Tools and techniques of innovation and creativity, Product development and Innovation and the psychology of creativity.

Learning Outcomes

By the end of the module, students should be able to demonstrate ability to:

i) Describe the techniques of creativity and innovation,
ii) Analyze the information relative to creativity and innovation,
iii) Apply effectively the innovative solutions, both independently and cooperatively, to current and future problems,
iv) Demonstrate commitment to the highest standards of professional endeavor and the ability to take a leadership role in the community.

Module 4: Accounting for entrepreneurs

Indicative content

The module is designed to equip students with a comprehensive understanding of accounting principles and practices tailored specifically for teachers of entrepreneurship. Students will explore various aspects of accounting and reporting, costing, focusing on the unique needs and challenges faced by entrepreneurs in managing their own businesses. The module covers several topics including accounting in entrepreneurship, key accounting concepts, bookkeeping basics, recording transactions, financial statements preparation as well as cost accounting basics.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the fundamental accounting and costing principles and practices and their application in the context of entrepreneurial ventures;

ii) Maintain accurate financial records, create financial statements;

iii) Analyze financial data to support decision making for entrepreneurs

iv) Explain various accounting techniques applied in journalizing transactions, preparation of income statement, balance sheet, bank reconciliation statement and control accounts;

v) Use accounting data for financial performance appraisal in any business.

Module 5: Business Communication

Indicative content

This module will equip students with clear and effective business communication skills. It will introduce them to concepts of business communication, different types of communication, and introduce them to various forms of communication indispensable to communicate internally and externally to achieve business goals. It will also equip students with skills of designing and writing business documents and reports.

Learning outcomes

By the end of this module, students will be able to:

i) Use a range of appropriate methods and effective channels in business communication,

ii) Apply appropriate techniques in transferring information within an organization,

iii) Convey complex business ideas in a well-structured and coherent form.

iv) Use both oral, written and computer communication skills in an organization.

Module 6: Financial Management

Indicative Content

This module will provide students with an understanding of the basic principles and concepts of financial management. It will introduce students to finance functions as well as sources of finance. The module will also cover financial markets and institutions, time value of money, capital budgeting techniques, dividend theories, cost of capital and financial statement analysis.

Learning outcomes

By the end of this module, student should be able to:

i) Define financial management and related concepts,

ii) Analyze the financial environment for sound finance decisions,

iii) Use capital budgeting techniques to appraise investment projects,

iv) Apply financial ratios to analyze financial statements.

Module 7: Business Law and Taxation

Indicative content

The module aims at introducing students to the legal environment related to the negotiation of business with third parties (such as creditors, debtors, agents or suppliers), highlighting the implications of legal rules in the management of business and thus allowing more conscious and informed decisions. It also introduces students to the principles of tax law in Rwanda as applied to different types of taxes. The module covers topics including corporate and business law and taxation.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the principles and rules regulating business in general and Rwanda in particular,

ii) Apply basic legal knowledge to business transactions,

iii) Communicate effectively using standard business and legal terminology,

iv) Appreciate the effect of legal and ethical framework on financial processes, reports and systems, recognizing the need to seek further specialist legal advice.

Module 8: New Venture Creation

Indicative content

This module provides hands-on experience in entrepreneurship and will equip learners with critical thinking, specific methods to access and understand the industry, customers, and competitors, preparing them for new venture creation. The module also introduces students on how to translate business insights into a winning venture idea, a business model, and a set of distinctive new products and services. In addition, the module gives students a wide range of techniques to spot business opportunities that could later be transformed into business ventures. The module covers topics such as entrepreneurial thinking, opportunity spotting and evaluation, business model and lean startup, industry and market research, strategy and business models.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the strategies and techniques that are appropriate to the creation of new ventures;

ii) Analyze the acquired knowledge about new ventures creation and customize this knowledge to the context;

iii) Apply the methods and techniques for the creation of new business ventures;

iv) Communicate with the team of experts to fine-tune business venture ideas.

3.5.11 Imbumbanyigisho z'Ikinyarwanda

Inshamake y'inyigisho

Iyi nyigisho igamije gutegura abanyeshuri bazavamo abarimu b'Ikinyarwanda cyane cyane abo mu mashuri yisumbuye n'ay'imyuga, haba mu Rwanda ndetse no mu mahanga. Uretse kandi kwibanda ku rurimi rw'Ikinyarwanda, iyi nyigisho igamije gutegura abanyeshuri bazahabwa impamyabumenyi y'icyiciro cya mbere cya kaminuza mu burezi (Diploma of Education), bityo ikaba igamije gucyemura ibibazo bigaragara mu myigire n'imyigishirize y'Ikinyarwanda by'umwihariko, ndetse n'izindi ndimi muri rusange, byose bigamije kuzamura ireme ry'uburezi.

Intego z'inyigisho

Nyuma yo kurangiza amasomo akubiye muri iyi nyigisho y'Ikinyarwanda, umunyeshuri azaba ashobora kwigisha neza amasomo y'Ikinyarwanda kugeza ku rwego rw'amashuri yisumbuye, kandi azaba afite ubumenyi, ubumenyingiro, ubushobozi n'ubukesha ku rurimi rw'ikinyarwanda cyane cyane kuri izi ngingo zikurikira:

i) Umusogongero ku rurimi rw'Ikinyarwanda, iyigandimi, n'ubuvanganzo nyarwanda;

ii) Ubugeni bwo kuvuga, kumva, gusoma no kwandika mu Kinyarwanda;

iii) Iyigamvugo n'iyigamajwi by'Ikinyarwanda;

iv) Iyigantego n'iyiganteruro by'Ikinyarwanda;

v) Ubusizi nyarwanda, ndetse n'iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda.

Imbonerahamwe ya 45: Imbata y'Imbumbanyigisho z'Ikinyarwanda

No	Imbumbanyigisho	Umwaka w'amasomo	Igihembwe	Igihe cy'imbumbanyigisho
1	Umusogongero ku rurimi rw'Ikinyarwanda n'iyigandimi	1	1	15
2	Umusogongero ku buvanganzo nyarwanda	1	1	10
3	Ubugeni bwo kuvuga no kwandika mu Kinyarwanda	1	2	15
4	Iyigamvugo n'iyigamajwi by'Ikinyarwanda	1	2	10
5	Iyigantego ry'Ikinyarwanda	2	1	10
6	Iyiganteruro ry'Ikinyarwanda	2	1	10
7	Ubusizi nyarwanda	2	1	10
8	Iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda	2	2	10
Total credits				**90**

Imbumbanyigisho ya 1: Umusogongero ku Rurimi rw'Ikinyarwanda n'Iyigandimi

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho ikubiyemo ubumenyi ku nshoza y'ururimi, inkomoko n'amasano ndetse n'itandukaniro by'indimi nyabantu muri rusange. Iyi mbumbanyigisho kandi ikubiyemo ubumenyi rusange ku iyigandimi, inshoza n'amuga bikoreshwa mu iyigandimi, amahame n'amahange bikoreshwa mu iyigandimi, isano n'itandukaniro biri hagati y'iyigandimi n'ibindi byerekezo by'ubuhanga bikoreshwa mu myigire, imyigishirize n'ubushakashatsi nyarurimi, ndetse n'amateka n'imiterere rusange by'ururimi rw'Ikinyarwanda.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Iyigandimi n'ibyerekezo bitandukanye byaryo;

ii) Inshoza n'amuga bikoreshwa mu iyigandimi;

iii) Amahame n'amahange bikoreshwa mu iyigandimi;

iv) Amateka n'imiterere rusange by'Ikinyarwanda.

Imbumbanyigisho ya 2: Umusogongero ku Buvanganzo Nyarwanda

Inshamake y'Imbumbanyigisho

Iyi mbumbanyigisho yibanda ku bumenyi rusange ku buvanganzo, inshoza n'amuga akoreshwa mu buvanganzo, ingeri zitandukanye z'ubuvanganzo zirimo ibyivugo, imivugo, imigani migufi n'imigani miremire, ibitekerezo byo muri rubanda, indirimbo, ibisigo, ubwiru, amazina y'inka, n'izindi. Iyi mbumbanyigisho kandi yibanda mahame n'amahange akoreshwa mu isesengura ry'ingeri zitandukanye z'ubuvanganzo, ndetse n'amateka n'imiterere y'ubuvanganzo nyarwanda by'umwihariko.

Intego z'Imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Ubuvanganzo nk'inshoza n'ikerecyezo cy'ubuhanga;

ii) Inshoza n'amuga bikoreshwa mu buvanganzo;

iii) Ingeri zitandukanye z'ubuvanganzo;

iv) Amahame n'amahange akoreshwa mu isesengura ry'ingeri zitandukanye z'ubuvanganzo;

v) Amateka n'imiterere y'ubuvanganzo nyarwanda.

Imbumbanyigisho ya 3: Ubugeni bwo Kuvuga no Kwandika mu Kinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho ifasha abanyeshuri kugira ubuhanga, ubumenyi n'ubumenyingiro mu bugeni bwo kuvuga, kwandika, kumva no gusoma Ikinyarwanda muri rusange. By'umwihariko, iyi mbumbanyigisho izibanda ku bugeni bwo kuvuga no kwandika mu

Kinyarwanda, gukora icyandikwa, gukora inyandikomvugo, kuvuga mu ruhame, kuyobora inama n'ibiganiro mpaka no kuvuga mu yindi mihango ikenera gukoresha ururimi mu buryo bwihariye, gutanga no gucengeza amakuru, kubara inkuru, gukora incamake, gutegura imbwirwaruhame n'ibindi. Ikindi, iyi mbumbanyigisho isobanura amateka n'imiterere y'amategeko n'amabwiriza agenga imyandikire y'Ikinyarwanda mu iyogabihe.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Amahame rusange ajyanye n'imyandikire y'Ikinyarwanda;

ii) Uburyo bunoze bwo kuvuga no kwandika Ikinyarwanda;

iii) Gukora icyandikwa, inyandikomvugo, imbwirwaruhame;

iv) Gutanga, gusesengura no gucengeza amakuru;

v) Kuyobora inama, ibiganiro mpaka n'iyindi mihango isaba ikoreshwa ry'Ikinyarwanda kihariye;

vi) Kuvuga mu ruhame, kubara inkuru, gukora incamake;

vii) Amateka n'imiterere y'amabwiriza y'imyandikire y'Ikinyarwanda.

Imbumbanyigisho ya 4: Iyigamvugo n'Iyigamajwi by'Ikinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho isobanura kandi ikibanda ku iyigamajwi nk'icyerekezo cy'ubuhanga kita ku majwi agize indimi nyabantu, ndetse no ku iyigamvugo nk'icyerekezo cy'ubuhanga kibanda ku gusesengura no gushyira mu byiciro amajwi akoreshwa mu rurimi rw'Ikinyarwanda. Iyi mbumbanyigisho isobanura iyigamajwi mu byiciro byaryo uko ari bitatu, ari ibyo imivugire, imyumvire n'iyakirwa by'amajwi akoreshwa mu rurimi rw'Ikinyarwanda.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza n'amateka by'iyigamvugo n'iyigamajwi,

ii) Itandukaniro n'isano biri hagati y'iyigamvugo n'iyigamajwi,

iii) Amajwi n'ibimenyetso bitandukanye bikoreshwa mu nyandiko nyemvugo n'inyandiko nyejwi by'Ikinyarwanda n'izindi ndimi Bantu,

iv) Ibice bigize amajwi akoreshwa mu Kinyarwanda n'izindi ndimi Bantu,

v) Amahame n'amahange akoreshwa mu iyigamvugo n'iyigamajwi,

vi) Amateka y'ikiremwamuntu n'imiterere y'umubiri w'umuntu n'uruhare rwabyo mu iyigamvugo n'iyigamajwi,

vii) Uburyo amajwi avugwa, yumvwa, anakirwa mu rurimi rw'Ikinyarwanda n'izindi ndimi Bantu

Imbumbanyigisho ya 5: Iyigantego ry'Ikinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yerekana ubwoko bwose bw'amagambo agize ururimi rw'Ikinyarwanda n'izindi ndimi Bantu, igamije kwerekana intego zayo. Yibanda ku buryo n'ibigenderwaho mu gushyira amoko y'amagambo mu byiciro bitandukanye, ikerekana isano n'itandukaniro biri hagati y'amoko y'amagambo agize ururimi. By'umwihariko yerekana intego n'amategeko y'igenantego n'igenamajwi akoreshwa mu mazina, ibinyazina, inshinga n'itondaguranshinga ryoroheje n'iry'urusobe, haba mu Kinyarwanda ndetse no mu zindi ndimi Bantu.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Ubwoko bw'amagambo agize ururimi rw'Ikinyarwanda;

ii) Ubwoko bw'amagambo agize indimi Bantu;

iii) Imiterere y'ubwoko butandukanye bw'amagambo agize Ikinyarwanda n'izindi ndimi Bantu;

iv) Itondaguranshinga ryoroheje n'iry'urusobe mu rurimi rw'Ikinyarwanda;

v) Uburyo bwo gusesengura intego z'inshinga, amazina, ibinyazina, ntera n'andi magambo agize Ikinyarwanda n'izindi ndimi Bantu;

vi) Kwerekana, gukoresha no gusobanura amategeko y'igenamajwi n'igenantego akoreshwa mu gusesengura intego z'amagambo mu Kinyarwanda.

Imbumbanyigisho ya 6: Iyiganteruro ry'Ikinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho ikubiyemo amahame n'amahange akoreshwa mu iyiganteruro, ikanerekana isano n'itandukaniro biri hagati y'iyigantego n'iyiganteruro, by'umwihariko ikerekana amahame, amahange n'uburyo amagambo atandukanye akurikirana akabyara interuro yoroheje cyangwa interuro y'urusobe. Yerekana imimaro itandukanye amagambo agira mu nteruro, ikerekana uburyo habaho isanisha mu rurimi rw'Ikinyarwanda no mu zindi ndimi Bantu. Iyi mbumbanyigisho kandi yerekana amahame n'amahange ashingirwaho, ndetse n'uburyo bwo kwerekana ko interuro ari interuro iboneye cyangwa interuro ikocamye mu rurimi rw'Ikinyarwanda no mu zindi ndimi Bantu. Ikindi kandi iyi mbumbanyigisho yerekana ibice bitandukanye bigize interuro y'urusobe, ikerekana akamaro k'ibyungo mu nteruro y'urusobe, ndetse n'uburyo igisobanuro cy'interuro gishobora guhinduka cyangwa kudahinduka bitewe n'umwanya ijambo runaka cyangwa igice cy'interuro kimuriwemo mu nteruro.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Amahame n'amahange atandukanye akoreshwa mu iyiganteruro;

ii) Amahame, amahange n'uburyo butandukanye bikoreshwa mu isesenguranteruro;

iii) Gusesengura ibice bigize interuro y'Ikinyarwanda n'izindi ndimi Bantu;

iv) Kwifashisha igiti mu kwerekana ibice bigize interuro hagendewe ku mahame n'amahange agezweho;

v) Ubwoko butandukanye bw'interuro mu rurimi rw'Ikinyarwanda;

vi) Kwerekana isano n'imimaro by'amagambo agize interuro yoroheje n'interuro y'urusobe;

vii) Kwerekana uburyo interuro igira ibisobanuro bitandukanye bitewe n'amagambo n'imyanya itandukanye ayo magambo arimo.

Imbumbanyigisho ya 7: Ubusizi Nyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yibanda ku mateka y'ubusizi nyarwanda by'umwihariko, ndetse n'ay'ubuvanganzo nyarwanda muri rusange. Iyi mbumbanyigisho isobanura inshoza y'ubusizi, ikerekana ubwoko butandukanye bw'ubusizi n'ibisigo, ndetse ikerekana n'ubuhanga butandukanye bukoreshwa mu busizi n'uburyo ibihangano nyabusizi bishyirwa mu byiciro bitandukanye hagendewe ku buhanga buba bwakoreshejwe ndetse n'utundi turango dutandukanye. Iyi mbumbanyigisho kandi yigisha amahame n'amahange akoreshwa mu gusesengura ibihangano nyabusizi, kandi ikerekana iminozanganzo ikoreshwa mu busizi, ndetse n'uturango dutandukanya imvugo cyangwa inyandiko nyabusizi n'ibindi byiciro by'imvugo cyangwa inyandiko. Mu gusoza, iyi mbumbanyigisho icengera ubusizi nyarwanda igamije kwerekana uko bwagiye butera imbere mu iyogabihe, akamaro bwagiye bugira, ndetse n'ibibazo bwagiye buhura na byo kugeza ubu.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza y'ubusizi n'ingeri zitandukanye z'ubusizi;

ii) Amateka y'ubusizi nyarwanda;

iii) Ubuhanga bukoreshwa mu busizi;

iv) Ibyiciro n'ubwoko bw'ubusizi n'ibisigo;

v) Amahame n'amahange akoreshwa mu gusesengura ibihangano nyabusizi;

vi) Iminozanganzo ikoreshwa mu busizi;

vii) Umumaro w'ubusizi nyarwanda, n'ibibazo bigaragara mu busizi nyarwanda.

Imbumbanyigisho ya 8: Iminozanganzo n'Ubuhanzi Nyandiko mu Kinyarwanda

Inshamake y'imbumbanyigisho

Iyi mbumbanyigisho yibanda ku minozangano n'ubuhanzi nyandiko mu Kinyarwanda. Iyi mbumbanyigisho kandi yerekana isano iri hagati y'ubuvanganzo n'iyigandimi. Yerekana kandi amateka y'ubuvanganzo nyandiko mu Rwanda, ndetse n'ubwoko butandukanye bw'iminozanganzo ikoreshwa mu busizi nyandiko mu Kinyarwanda. Iyi mbumbanyigisho inerekana amahame n'amahange akoreshwa mu gusesengura ibahangano nyabusizi nyandiko, ndetse n'uburyo bwo gukora igihangano nyabusizi nyandiko.

Intego z'imbumbanyigisho

Iyi mbumbanyigisho izarangira umunyeshuri afite ubumenyi ku ngingo zikurikira:

i) Inshoza z'ubuvanganzo n'ubuhanzi nyandiko,

ii) Inshoza y'iminozanganzo n'ubwoko butandukanye bwayo,

iii) Isano n'itandukaniro biri hagati y'ubuvanganzo n'iyigandimi nk'ibyerekezo by'ubuhanga,

iv) Amateka y'ubuvanganzo nyandiko mu Rwanda,

v) Ingeri zitandukanye z'ubuvanganzo nyarwanda,

vi) Amahame, amahange n'uburyo bwo gusesengura ibihangano nyandiko,

vii) Uburyo bwo gukora ibihangano nyandiko mu Kinyarwanda.

3.5.12 English Modules

Brief Description of the Programme Aims

The aim of English language education programme is to equip students with the knowledge, skills and competences needed in English as language of teaching and learning in Rwandan educational system and as language of wider communication in global scientific, technological, and business arenas. The focus of English programme at Diploma level is on the four language skills, i.e., speaking, listening, writing and reading; general linguistics and its sub-fields as well as world English literature.

Learning outcomes

By the end of the programme, students should be able to:

i) Describe the main features of a well written English text;

ii) Explain the grammatical structures of English, elements of English language meaning and use;

iii) Explain the basic literary devices and styles used in African, British and American literature;

iv) Produce coherent text-types in English;

v) Conduct an intelligible conversation in English;

vi) Correct language mistakes in spoken or written English;

vii) Carry out sociolinguistic surveys and contribute to the improvement of a language plan used in a given context.

Table 46: **Distribution of English Modules**

S/N	Module	Year of study	Semester	Credits
1	English Reading and Writing Skills	1	1	15
2	English Listening and Speaking Skills	1	1	10

3	Linguistics and Grammar of English	1	2	15
4	Introduction to Literature in English	1	2	10
5	World English Literature	2	1	15
6	Morphology and Syntax of English	2	1	15
7	Sociolinguistics	2	2	10
Total credits				**90**

Module 1: English Reading and Writing Skills

Indicative content

The module aims to help students enhance and refine the two language skills of writing and reading in English as they navigate their studies at the university as well as in other various settings. It mainly focuses on some informal and formal types of English writing such as memo, letter, essay and summary as well as the analysis of texts which can be used for teaching and learning.

Learning outcomes

By the end of this module, students should be able to:

i) Describe the reading strategies used while reading and interpreting various types of reading materials used in an academic context;

ii) Describe the main features of a well written paragraph, short essay, text summary, memo as well as formal and informal letters in English;

iii) Read critically and analytically general text types written in English;

iv) Produce accurate and coherent short essays, short summaries of texts as well as formal and informal letters and CV in English;

v) Use a computer to produce a piece of writing or present findings from the read document(s);

vi) Confidently work on a variety of formal and informal pieces of writing in English;

vii) Critically scrutinise the reading materials suitable for academic purposes.

Module 2: English Listening and Speaking Skills

Indicative content

The module aims to help students enhance and refine the two language skills of listening and speaking in English as they navigate their studies at the university as well as in other various settings. It mainly focuses on various genres of listening (listening and summarizing, listening and note-taking, listening for general information, listening and gap-filling) as well as English language sounds and aspects of connected speech, paying special attention to British and American varieties of English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the main phonological rules in English;
ii) Listen to and take note of the message expressed in English;
iii) Speak accurately to peers on a range of topics in English;
iv) Interact with peers on a range of topics in English;
v) Interpret an aural message to a third party;
vi) Perform various listening tasks;
vii) Hold an intelligible conversation in English using a variety of presentation modes.

Module 3: Linguistics and Grammar of English

Indicative content

The module aims to equip and acquaint students with basic theories, principles, processes and approaches used in the scientific study of language. The module also aims to provide students with the basic knowledge of grammar that will help them improve their writing and speaking and come up with clear and accurate expression of English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain key linguistic components and fundamental grammatical structures of English
ii) Describe the fundamental components of linguistics
iii) Distinguish linguistic schools and sub-fields
iv) Apply the rules governing the use of the different types of words to make sentences and analyse texts
v) Discuss the main linguistic schools and the functions of the sub-fields of linguistics
vi) Analyse sentences, detect language mistakes and correctly write English
vii) Carry out linguistic and grammatical analysis of English.

Module 4: Introduction to Literature in English

Indicative content

The module aims to equip students with the basic notions and concepts of English literature which help them to determine its nature (oral and written literature), situate it among other arts and sciences, discern its specificity, distinguish the qualities of a literary work and describe and analyse the major and minor literary genres.

Learning outcomes

By the end of this module, students should be able to:

i) Carry out critical appraisal of a literary work whether it is major and minor literary genre (prose fiction, poetry or drama).

ii) Analyse some selected works to illustrate the major characteristics of every literary genre and identify the theories developed by literary critics

iii) Identify and appreciate the major themes developed in literary works.

Module 5: World English Literature

Indicative content

The module is intended to introduce students to the major literary genres and historical, cultural and political forces and ideologies that have shaped African, British and American literature. The module is also designed to equip the students with the tools that enable them to interpret, analyze and appreciate a wide range of texts and styles.

Learning outcomes

By the end of this module, students should be able to:

i) Explain various historical, cultural and political forces and ideologies that have shaped African, British and American literature

ii) Use basic literary devices and styles in African, British and American literature

iii) Explain major periods of English literature in African, British and American context

iv) Develop own ideas about literature, its form, its functions and its politics

v) Interpret literary texts orally and in writing in a classroom situation and outside the class

vi) Carry out literary research in different literary genres.

Module 6: Morphology and Syntax of English

Indicative content

The module aims to analyse English language structures and explore its various morphological and syntactical aspects. The focus is on speech sounds in English, linguistic units in English, transformational grammar and other generative approaches in English.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the concepts of morphology and syntax in English

ii) Describe the main elements in the function of morphology and syntax in English

iii) Apply the generative-transformational approach to English sentences

iv) Explain generative-transformational approach to English sentences

v) Analyze the quality of utterances and written words

vi) Discuss the principles of word derivation

vii) Use correctly English in speaking and writing.

Module 7: Sociolinguistics

Indicative content

The module helps students understand how language is used in different layers of human society and how it generates idiolects, dialects and sociolects. It is also concerned with language policies and helps to understand and explain the fundamentals of language planning for social development.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the way linguistic productions especially texts are embedded in individual and social contexts

ii) Explain the relationships between language and textual, individual and social environment

iii) Apply key techniques of sociolinguistic analysis

iv) Demonstrate the influence of society in language policy and planning

v) Analyze texts emphasizing individual and social marks embedded in them

vi) Analyze the language policy in use or carry out sociolinguistic surveys.

3.5.13 Les Modules de Français

Contenu indicatif du programme

Le programme de Diploma of Education in French vise à donner aux étudiants une formation universitaire qui leur permettra de devenir des enseignants de la langage et littérature françaises dans les écoles secondaires. En plus, ce programme a pour but de promouvoir l'épanouissement intellectuel ainsi que les connaissances et aptitudes que fait acquérir l'étude de la littérature et de la langue, ceci pour la promotion de la qualité d'enseignement au Rwanda, en Afrique et au monde.

Les objectifs du programme

A la fin de ce programme de Diploma of Education in French, les étudiants auront acquis les connaissances et aptitudes pour servir comme enseignants de la langue et littérature françaises. A la fin de ce programme, les étudiants seront en mesure de:

i) Communiquer librement en francais;

ii) Expliquer la langue, la linguistique et la littérature françaises;

iii) Utiliser correctement la grammaire française en communication;

iv) Appliquer les éléments d'analyse du texte littéraire;

v) Décrire l'apport de la linguistique appliquée à l'enseignement du français;

vi) Exploiter la stylistique française et la création littéraire.

Table 47: **Distribution de modules de Français**

No.	Module	Année d'étude	Semestre	Crédits
1	Expression orale et écrite en français I	1	1	15
2	Expression orale et écrite en français II	1	1	10
3	Introduction à la langue et à la linguistique françaises	1	2	15
4	Introduction à la littérature française	1	2	10
5	Grammaire française	2	1	10
6	Littérature africaine d'expression française	2	1	10
7	Linguistique appliquée à l'enseignement du français	2	1	10
8	Stylistique française et création littéraire	2	1	10
Le total des crédits				**90**

Module 1: Expression orale et écrite en français I

Le contenu indicatif

Ce module permettra aux étudiants de comprendre et utiliser des expressions familières et quotidiennes ainsi que des énoncés très simples qui visent à satisfaire des besoins concrets. Il leur permettra de se présenter ou de présenter quelqu'un et poser à une personne des questions qui la concernent par exemple, sur son lieu d'habitation, ses relations, ce qui lui appartient. Il s'agira aussi de pouvoir communiquer de façon simple si l'interlocuteur parle lentement et distinctement et se montrer coopératif. A la fin de ce module l'étudiant aura acquis le niveau A2 du CECRL.

Les objectifs d'apprentissage

A la fin du module l'étudiant sera capable de:

i) Atteindre le niveau A2 du Cadre Européen Commun de Référence pour les Langues.

ii) Comprendre et utiliser des expressions familières et quotidiennes ainsi que des énoncés très simples qui visent à satisfaire des besoins concrets;

iii) Se présenter ou présenter quelqu'un et poser à une personne des questions la concernant par exemple, sur son lieu d'habitation, ses relations, ce qui lui appartient, etc.

iv) Répondre au même type de questions;

v) Communiquer de façon simple si l'interlocuteur parle lentement et distinctement et se montre coopératif.

vi) vi.utiliser l'outil informatique pour apprendre la langue française.

Module 2: Expression orale et écrite en français II

Le contenu indicatif

En mobilisant les compétences communicatives, ce module vise à permettre à l'apprenant de comprendre des phrases isolées et des expressions fréquemment utilisées en relation avec des domaines immédiats de priorité (par exemple, informations personnelles et familiales simples, achats, environnement proche, travail). Avec ce module l'étudiant pourra communiquer lors de tâches simples et habituelles ne demandant qu'un échange d'informations simple et direct sur des sujets familiers et habituels. Il pourra aussi décrire avec des moyens simples sa formation, son environnement immédiat et évoquer des sujets qui correspondent à des besoins immédiats. A la fin de ce module l'étudiant aura acquis le niveau B1 du CECRL.

Les objectifs d'apprentissage

A la fin de ce module, l'étudiant sera capable de:

i) Ecouter et comprendre des expressions et un vocabulaire très fréquent relatifs à ce qui le concerne de très près (par exemple lui-même, sa famille, les achats, l'environnement proche, le travail);

ii) Saisir l'essentiel d'annonces et de messages simples et clairs;

iii) Lire des textes courts très simples;

iv) Trouver une information particulière prévisible dans des documents courants comme les publicités, les prospectus, les menus et les horaires et comprendre des lettres personnelles courtes et simples;

v) Communiquer lors de tâches simples et habituelles ne demandant qu'un échange d'informations simple et direct sur des sujets et des activités familiers.

vi) Utiliser l'outil informatique pour apprendre la langue française.

Module 3: Introduction à la langue et à la linguistique françaises

Le contenu indicatif

Ce module vise à fournir aux étudiants les éléments de base de la langue et de la linguistique françaises. Ce module équipe les étudiants des connaissances de base sur le concept de langue, différents types et catégories du langage, l'usage et différentes fonctions de langue, phonétique et phonologie du français contemporain, ainsi que sur la production orale en français. Il leur permet également de s'exprimer couramment en français en respectant les règles phonétiques et communicatives.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Démontrer les connaissances sur les notions de base sur le langage;

ii) Décrire différents types et catégories des langues

iii) Expliquer l'usage et fonctions de langues;

iv) Appliquer la phonétique et phonologie du français contemporain,

v) Appliquer les techniques de la production orale en français.

Module 4: Introduction à la littérature française

Le contenu indicatif

Ce module vise à initier les étudiants aux grands courants et genres littéraires en France du Moyen Âge à nos jours et aux différentes approches d'explication de texte. Il va introduire les étudiants sur les mouvements littéraires comme la poésie épique, roman courtois, satire, lyrisme, ainsi que sur les courants littéraires comme la Renaissance, Classicisme, Siècle des Lumières, romantisme, réalisme, surréalisme, naturalisme, symbolisme, nouveau roman, etc. A la fin, ce module va introduire aux étudiants les différentes approches d'explication du texte français.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Définir les grands noms de la littérature française du Moyen Âge à nos jours;

ii) Décrire les mouvements littéraires: poésie épique, roman courtois, satire, lyrisme, etc.;

iii) Décrire les courants littéraires: Renaissance, Classicisme, Siècle des Lumières, romantisme, réalisme, surréalisme, naturalisme, symbolisme, nouveau roman, etc,

iv) Décrire les différentes approches d'explication de texte,

v) Appliquer les différentes approches d'explication de texte sur le français.

Module 5: Grammaire française

Le contenu indicatif

Ce module vise à faire un rappel sur l'orthographe du français et à renforcer chez l'étudiant les éléments de la formation des mots français. Il leur fournit des éléments de la morphosyntaxe du verbe français et des éléments de la morphosyntaxe de la phrase française qui leur permettront d'acquérir la compétence grammaticale.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Expliquer les différentes modes de formation des mots français;

ii) Décrire the techniques de la morphosyntaxe des parties du discours;

iii) Décrire la morphosyntaxe du verbe;

iv) Expliquer la morphosyntaxe de la phrase;

v) Appliquer the techniques de la morphosyntaxe des parties du discours;

vi) Appliquer la morphosyntaxe de la phrase.

Module 6: Littérature africaine d'expression française (crédits 10)

Le contenu indicatif

Ce module vise à apprendre aux étudiants à repérer des indices, établir des liens, mettre en relation les informant du texte en vue d'en déduire des significations. Il vise également à aider les étudiants à expliciter et défendre sa position sur les intentions des poètes, des dramaturges et des romanciers de la littérature africaine francophone. Enfin ce module va permettre aux étudiants d'analyser les éléments linguistiques relatifs aux thèmes des textes et d'exprimer leur point de vue sur les différents types de violence décrits par la littérature africaine francophone.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en capable de:

i) Expliquer la poésie: la négritude et la poésie militante;

ii) Expliquer le théâtre: la violence dans le Théâtre africain;

iii) Expliquer le roman: l'anticolonialisme et la désillusion dans le roman africain, le thème de l'exil, de l'enfant-soldat, de la violence faite à la femme dans le roman des années 2000.

iv) Décrire la différence entre la poésie, le théâtre et le roman.

v) Analyser et juger la poésie, le théâtre et le roman dans le contexte africain

Module 7: Linguistique appliquée à l'enseignement du français (10 crédits)

Le contenu indicatif

Ce module vise à faire acquérir aux étudiants des compétences de compréhension de la nécessité et de l'utilité d'enseigner le FLE en tenant compte des besoins des apprenants mais aussi des contraintes inhérentes à la mission des institutions de l'Éducation. Il vise également à décrire les notions de base de sociolinguistique et de psycholinguistique et à les appliquer dans l'enseignement du FLE. Enfin, il permet aux étudiants de pouvoir mener une enquête sociolinguistique en didactique du FLE au Rwanda.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Expliquer les notions de sociolinguistique et de psycholinguistique;

ii) Décrire les techniques de l'Acquisition et production du langage;

iii) Appliquer les techniques de l'Acquisition et production du langage;

iv) Appliquer les techniques Sociolinguistique et Psycholinguistique en didactique du FLE au Rwanda.

Module 8: Stylistique française et création littéraire (10 crédits)

Le contenu indicatif

Ce module vise à entraîner les étudiants aux méthodes et techniques d'analyse stylistique des textes littéraires. Il vise également à les initier, par des exercices pratiques, aux techniques d'écriture de textes littéraires de différents genres.

Les objectifs d'apprentissage

A la fin de ce module, les étudiants seront en mesure de:

i) Décrire l'organisation d'un texte poétique, dramatique et prosaïque;
ii) Décrire la rhétorique et les figures de style;
iii) Appliquer les procédés énonciatifs et lexicaux;
iv) Analyser Les constituants syntaxiques;
v) Décrire la théorie et les étapes de la création littéraire;
vi) Appliquer les conseils pratiques pour devenir écrivain;
vii) Appliquer les techniques d'expression écrite.

3.5.14 Moduli za Kiswahili

Ufafanuzi Mfupi wa Malengo ya Ujifunzaji wa Somo la Kiswahili

Kiswahili ni lugha inayokua kwa kasi kimataifa huku ikiwa na nafasi ya kipekee katika utangamano wa Jumuiya ya Afrika Mashariki na jumuiya nyingine za kikanda. Hivyo, programu hii inakusudia kuandaa wahitimu watakaoweza kufundisha somo la Kiswahili katika kidato cha kwanza hadi cha tatu. Programu hii inawajengea wanafunzi umilisi wa kimawasiliano na maarifa mwafaka ya isimu na fasihi na hivyo walimu mahiri wa Kiswahili.

Matokeo ya Ujifunzaji Yanayotarajiwa

Wanafunzi wanaohitimu katika programu hii wanatarajiwa waweze:

i) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano sahili na changamani katika zama za kidijiti na utandawazi;
ii) Kulinganisha na kulinganua muundo na sarufi ya Kiswahili dhidi ya lugha za Kibantu akidhirisha umahiri katika TEHAMA;
iii) Kuhakiki matini za fasihi andishi na fasihi simulizi akiweka mkazo katika kujenga maadili ya kitaifa na kiulimwengu;
iv) Kuitumia fasihi kama nyenzo ya kufundishia lugha na kutekeleza mtaala unaoegemea katika uwezo katika mazingira yanayohitaji kutumia stadi za kidijiti;
v) Kuyatumia maarifa ya isimu katika ufundishaji wa lugha ya Kiswahili katika madarasa ya lugha ya zama kidijiti;
vi) Kufanya tafiti zinazohusiana na lugha na isimu ili kuboresha ufundishaji wa Kiswahili;

vii) Kutumia nadharia za uhakiki katika kuhakiki kazi za fasihi zinazokusudia kujenga elimu jumuishi, uraia wa kiulimwengu, na kukuza maadili katika jamii.

Jedwali ya 48: **Mgawanyo wa Moduli Zinazohusiana na Somo la Kiswahili**

Na:	Moduli	Mwaka wa Masomo	Semista	Krediti
1	Utangulizi wa Mawasiliano	1	1	15
2	Utangulizi wa lugha na Misingi ya isimu	1	1	10
3	Utangulizi wa fasihi ya Kiswahili	1	2	10
4	Mawasiliano Changamani	1	2	15
5	Ushairi wa Kiswahili na Nathari Bunilizi	2	1	10
6	Fonolojia na Mofolojia ya Kiswahili	2	1	10
7	Sintaksia ya Kiswahili na Uchanganuzi wa kilongo	2	1	10
8	Drama na Fasihi Simulizi ya Kiswahili na Kiafrika	2	2	10
Jumla ya Krediti				**90**

Moduli ya 1: Utangulizi wa Mawasiliano

Ufafanuzi

Moduli hii inaweka mkazo katika kukuza umilisi wa kimawasiliano katika stadi nne za lugha: kusikiliza, kuzungumza, kusoma na kuandika. Dhima mbalimbali za mawasiliano zinajadiliwa. Zaidi ya hivyo, mchakato wa mawasiliano unajadiliwa pamoja na aina mbalimbali za mawasiliano zilizopo. Aidha, vikwazo mbalimbali vya mawasiliano vinajadiliwa pamoja na utatuzi wa vikwazo vya mawasiliano.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kudhihirisha maarifa na ufahamu wa lugha na mawasiliano;

ii) Kukamilisha majukumu mbalimbali yanayohitaji umilisi wa kimawasiliano katika zama za kidijiti;

iii) Kushiriki kwa ukamilifu katika maingiliano ya kimawasilinao kwa malengo mabalimbali yaliyopo katika maisha halisi wakitumia nyenzo za kidijiti;

iv) Kuandika na kusoma kwa ufasaha matini za Kiswahili za kawaida na zile kutoka nyenzo za kidijiti;

v) Kuzungumza na kusikiliza kwa ufasaha katika muktadha wa mazungumzo ya Kiswahili ya ana kwa ana au kutumia nyenzo za kidijiti;

vi) Kuchanganua matini mbalimbali kwa malengo ya kubainisha muktadha wa mawasilino uliopo;

vii) Kulinganisha na kulinganua matini andishi na matini simulizi; na

viii) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano kwa kuheshimu tofauti za watu za dini, utamaduni..

Moduli ya 2: Utangulizi wa Lugha na Misingi ya Isimu

Ufafanuzi

Moduli hii inashughulika na dhana za jumla kuhusu lugha pamoja na lugha ya Kiswahili kwa umahsusi. Moduli inaangaza kwa kifupi kuhusu sarufi ya Kiswahili na historia ya lugha ya Kiswahili. Aidha, inaweka msingi kuhusu maswala ya isimu katika lugha ya Kiswahili. Hivyo maana ya isimu na matawi mbalimbali ya isimu yanajadiliwa. Moduli inatoa fursa kwa wanafunzi kujuzwa majukumu mbalimbali ya wanaisimu.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufasili lugha na kueleza sifa za lugha kwa mdomo au kutumia nyenzo za TEHAMA;

ii) Kufafanua historia ya lugha ya Kiswahili kwa njia ya TEHAMA;

iii) Kuchanganua muundo na sarufi ya Kiswahili;

iv) Kutumia kwa ufasaha muundo na sarufi ya Kiswahili katika mawasiliano halisi ya ana kwa ana katika zama za kidijiti;

v) Kuelezea Matawi mbalimbali ya isimu kwa kutumia nyenzo za kidijiti;

vi) Kulinganisha na kutofautisha lugha ya Kiswahili na Kinyarwanda;

vii) Kutathimini mikabala tofauti iliyopo kuhusu asili ya Kiswahili;

viii) Kulinganisha na kutofautisha matawi mbalimbali ya isimu.

Moduli ya 3: Utangulizi wa Fasihi ya Kiswahili

Ufafanuzi

Moduli hii inajikita katika kuweka bayana maarifa ya jumla kuhusu fasihi na maarifa mahsusi kuhusu fasihi ya Kiswahili. Hivyo, moduli inatalii maana ya afsihi, mitazamo kuhusu fasihi, asili ya fasihi, dhima za fasihi, na tanzu mbalimbali za fasihi na misingi ya uhakiki wa fasihi. Aidha, moduli inamtambulisha mwanafunzi katika kuitazama fasihi kama nyenzo ya ufundishaji wa lugha.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kueleza maana ya fasihi;

ii) Kufafanua mitazamo iliyopo kuhusu fasihi;

iii) Kujadili dhima za fasihi kutoka zama za kale mpaka katika zama za kidijiti;

iv) Kujadili kuhusu asili ya fasihi na hivyo kujenga msingi wa kuheshimu mawazo tofauti;

v) Kulinganisha na kulinganua tanzu za fasihi katika zama za kidijiti;

vi) Kuainisha tanzu za fasihi kwa kutumia nyenzo mbalimbali za kidijiti;

vii) Kuhakiki matini za fasihi andishi na fasihi simulizi kwa minajili ya kujenga misingi ya elimu jumuishi, uraia wa kiulimwengu ; na

viii) Kuitumia fasihi kama nyenzo ya ufundishaji na ujifunzaji wa lugha na utekelezaji wa mtaala unaoegemea katika uwezo katika zama za kidijiti.

Moduli ya 4: Stadi za Mawasiliano Changamani

Ufafanuzi

Moduli hii inaweka mkazo katika kukuza umilisi wa mawasiliano changamani katika stadi nne za lugha: kusikiliza, kuzungumza, kusoma na kuandika. Aina tofauti za matini za mazungumzo na kimaandishi katika kiwango changamani ndizo zinazopewa kipaumbele katika kujenga stadi za lugha. Hivyo moduli inatoa fursa kwa mwanafunzi kuwa na umilisi wa matini changamani za kimazungumzo na kimaandishi.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua mawasiliano changamani katika stadi nne za lugha katika zama za kidijiti;

ii) Kubainisha aina tofauti za matini andishi zinazoakisi mawasiliano changamani kwa kutumia TEHAMA;

iii) Kubainisha aina tofauti za matini za kimazungumzo zinazoakisi mawasiliano changamani;

iv) Kushiriki kwa ukamilifu katika mawasiliano changamani kama vile usaili wa kazi, midahalo, mahojiano ya redioni au katika runinga;

v) Kuandika kwa ufasaha kwa kutumia nyenzo za kidijiti matini andishi kama vile barua ya kuomba kazi, kumbukumbu za mikutano, hotuba, hadithi za kubuni, risala, na matini za kitaaluma;

vi) Kutoa mrejesho sahihi kutokana na kusikiliza mawasiliano ya ana kwa ana au kutoka nyenzo za kidijiti mawasiliano changamani kama vile mdahalo, mkutano, majadiliano, taarifa ya habari, na mahubiri ya kanisani au msikitini;

vii) Kusoma matini changamani kama vile insha za hoja, kisanaa, matini za kitaaluma, mwongozo wa matumizi ya kitu, maelekezo ya kuzingatia, na kisha kuweza kutoa mrejesho sahihi; na

viii) Kutumia stadi za mawasiliano kwa ufasaha katika mawasiliano yanayozingatia maadili, utu, na kuheshimu tofauti miongoni mwa binadamu.

Moduli ya 5: Ushairi wa Kiswahili na Nathari Bunilizi (Krediti 10)

Ufafanuzi wa Moduli

Moduli hii inashughulikia ushairi wa Kiswahili kwa upande mmoja na nathari bunilizi kwa upande mwingine. Inaweka mkazo katika fasili na sifa bainifu za ushairi na nathari bunilizi. Aidha, historia ya ushairi wa Kiswahili pamoja na nathari bunilizi inashughulikiwa. Hivyo basi, moduli hii inakusudia kumpa mwanafunzi uelewa wa kina kuhusu ushairi wa Kiswahili pamoja na nathari bunilizi ikiwa pia ni nyenzo za ufundishaji lugha.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua ushairi wa Kiswahili na nathari bunilizi za Kiswahili;

ii) Kujadili sifa bainifu za ushairi wa Kiswahili, hadithi fupi andishi, na riwaya;

iii) Kulinganisha na kulinganua kumbo mbalimbali za ushairi wa Kiswahili;

iv) Kulinganisha na kulinganua kumbo mbalimbali za nathari bunilizi kama vile riwaya vs hadithi fupi andishi; hadithi fupi andishi vs hadithi simulizi; hadithi fupi andishi vs novela;

v) Kuhakiki ushairi wa Kiswahili na nathari bunilizi za Kiswahili kwa minajili ya kujenga maadili, thamani na mitazamo inayokubalika katika jamii;

vi) Kutumia ushairi au nathari bunilizi kama nyenzo ya kufundishai na kujifunzia lugha ya Kiswahili na kutekeleza mtaala unaoegemea katika uwezo;

vii) Kusimulia nathari bunilizi na kutongoa kumbo teule za ushairi kwa kuzingatia mahitaji ya zama za kidijiti; na

viii) Kutunga mashairi au hadithi fupi andishi kwa kutumia TEHAMA.

Moduli ya 6: Fonolojia na Mofolojia ya Kiswahili

Ufafanuzi

Moduli hii inafafanua vipengele mbalimbali vya kifonolojia na kimofolojia. Aidha, inaeleza kwa ujumla sio tu kuhusu unukuzi wa kifonolojia na kiotografia wa matini za kifasihi bali pia kategoria za kisarufi. Moduli hii pia inakusudia kuwawezesha wanafunzi kuelezea nomino, vivumishi, viwakilishi, na vitenzi kwa kuegemea katika miundo ya kimofolojia ya aina hizi za maneno.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi kuhusu fonolojia na mofolojia kwa kutumia nyenzo za kidijiti;

ii) Kufafanua muundo wa nomino, kivumishi, kiwakilishi na kitenzi katika sarufi ya Kiswahili;

iii) Kuelezea kategoria mbalimbali za kisarufi pamoja na miundo yake;

iv) Kutumia kategoria sahihi za maneno katika kuunda matini za Kiswahili kwa nyenzo za kidijiti;

v) Kutumia kwa usahihi kanuni za kimofo-fonolojia katika kuchanganua maneno ya Kiswahili kwa kutumia TEHAMA;

vi) Kubainisha elementi bainifu za fonolojia na mofolojia ya Kiswahili;

vii) Kutumia kwa usahihi vipengele vya sarufi ya Kiswahili katika mawasiliano mbalimbali; na;

viii) Kudhihirisha muundo wa kategoria za kisarufi za Kiswahili.

Moduli ya 7: Sintaksia ya Kiswahili na Uchanganuzi wa Kilongo (Krediti 10)

Ufafanuzi

Moduli inashughulikia vipengele mbalimbali vya kisintaksia katika lugha ya Kiswahili. Aidha, inatalii dhana mbalimbali kuhusu uchanganuzi wa kilongo (disikozi) na kufafanua uhusiano wake na meneo mengine ya kiisimu. Aidha, sentensi sahili na zile changamano za Kiswahili zinachanganuliwa huku mkazo ukiwekwa katika vipashio vyake kuanzia kile kidogo kabisa mpaka kile kikubwa zaidi.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana za msingi kama vile sintaksia na uchanganuzi wa kilongo;

ii) Kufafanua miundo ya kisintaksia ya Kiswahili ya aina za maneno, sentensi sahili na sentensi changamani;

iii) Kujadili uhusiano baina ya sintaksia ya Kiswahili na vipengele vingine vya kisarufi;

iv) Kutumia aina za maneno muafaka katika kuunda sentensi za Kiswahili;

v) Kutumia nadharia tofauti katika kubainisha na kutofautisha sentensi za Kiswahili na kilongo;

vi) Kutathimini kanuni za kuanisha kilongo na sentensi za Kiswahili;

vii) Kufanya mawasiliano kwa ufasaha kutokana na kuzingatia kilongo na sintaksia ya Kiswahili na nyenzo anuai za kidijiti; na

viii) Kuandaa utafiti kuhusu diskozi na sintaksia ya Kiswahili na kuzisambaza kwa kutumia nyenzo za TEHAMA.

Moduli ya 8: Drama na Fasihi Simulizi ya Kiswahili na Kiafrika (Krediti 10)

Ufafanuzi

Moduli hii inakusudia kumuwezesha mwanafunzi kuwa na uelewa wa kina wa drama na fasihi simulizi ya Kiswahili na Kiafrika. Moduli inatalii uhusiano wa drama na fasihi simulizi na nafasi yake katika kufanikisha malengo mbalimbali ya elimu. Hivyo moduli hii inaifanya drama na fasihi simulizi kuchukua mwelekeo wa kuwa nyenzo muhimu katika maisha ya mwanadamu toka kuzaliwa kwake mpaka kufa.

Matokeo ya Ujifunzaji

Baada ya mwanafunzi kujifunza moduli hii kwa ukamilifu, mwanafunzi ataweza:

i) Kufafanua dhana na elementi za msingi za drama na fasihi simulizi;
ii) Kufafanua asili ya drama na uhusiano uliopo baina ya drama na fasihi simulizi;
iii) Kuelezea aina za drama na historia ya drama ya Kiswahili na fasihi simulizi;
iv) Kuanisha tanzu mbalimbali za fasihi simulizi na drama;
v) Kujadili changamoto za uanishaji wa tanzu za fasihi simulizi kwa kutumia TEHAMA;
vi) Kulinganisha na kulinganua fasihi simulizi ya Kiswahili dhidi ya ile ya Kiafrika;
vii) Kuhakiki drama na fasihi simulizi ya Kiswahili na Kiafrika na kuwasilisha matokeo kwa kutumia nyenzo za TEHAMA;
viii) Kutathimini ufaafu wa drama na fasihi simulizi kama nyenzo ya ufundishaji lugha na utekelezaji wa mtaala unaoegemea katika uwezo katika zama za kidijiti.

3.5.15 Early Childhood Development Modules

Brief Description of the Programme Aims

The aims of this programme are to equip student teachers with appropriate competences enabling them to teach and provide early childhood services in pre-schools as well as in ECD centers. Moreover, this programme enables graduates to work with the wider community to improve early childhood education.

Learning outcomes

By the end of this module students should be able to:

i) Explain concepts related to Early Childhood Development,
ii) Apply ECD principles in pre-schools and in the community,
iii) Teach effectively young children in pre-schools,
iv) Working with parents and the community for their involvement in ECD,
v) Provide ECD services in schools and communities.

Table 49: **Distribution of ECD Modules**

S/N	Module	Year of study	Semester	Credits
1	Introduction to Early Childhood Development	1	1	15
2	Foundations and Theories of ECD	1	1	15
3	Early Childhood Growth and Development	1	1	20
4	Parent and Community Involvement	1	2	15
5	Language and Literacy in ECD	1	2	20
6	Special Needs and Inclusive Education	1	2	15
7	Play, movement, music, and drama for children	2	1	20
8	Mathematics and Numeracy in ECD	2	1	20

9	Health Safety and Nutrition in Childcare Settings	2	1	20
10	Arts, Craft and Materials development	2	2	10
11	Data Use for children's learning	2	2	10
Total credits				**180**

Module 1: Introduction to Early Childhood Development

Indicative content

This module aims at introducing student teachers to the field of early childhood and development. It encompasses mainly the following topics: History of the early childhood development; Trends, issues, and Services in ECD; Understanding child diversity; Understanding family diversity; Early childhood learning environment; Supporting social-emotional development of young children; Current research and evidence-based practices in early childhood program policy and practice; Development of early childhood teacher identity.

Learning outcomes

By the end of this module, students should be able to:

i) Demonstrate broad knowledge, understanding, and awareness of early childhood development.

ii) Analyze current trends and issues in the field of early childhood education.

iii) Support social-emotional development of young children.

iv) Connect current research and evidence-based practices to early childhood program policy and practice.

v) Demonstrate professional ECD teacher identity.

Module 2: Foundations and Theories of Early-Childhood Education

Indicative content

This module introduces students to the field of early childhood education. It encompasses the following topics: introduction to early childhood education; philosophical and sociological foundations of early childhood education; history of early childhood education, theories of early childhood education; policies and current trends in early childhood education.

Learning outcomes

By the end of this module, students should be able to:

i) Describe early childhood development process,

ii) Explore the philosophical and sociological foundations of early childhood education,

iii) Describe history of early childhood education,

iv) Apply theories of early childhood education in school and beyond,

v) Work with others to bring about change, development, and new thinking in relation to policies and current trends in early childhood education,

Module 3: Early Childhood Growth and Development

Indicative content

This module aims at making student teachers aware of the physical and psychological changes that occur in infancy and early childhood development. The content of this module includes the following topics: introduction to human growth and development (meaning of growth and human development, determinants of growth and development, factors influencing growth and development); Period of human development (Prenatal, infancy, early childhood, middle and late childhood, adolescence, adult and old age); Aspects of development like physical, cognitive, psycho-motor, social, emotional, moral, and language, and personality development and early childhood.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the processes of human growth and development.

ii) Explain the factors that influence human growth and development.

iii) Analyze a wide range of developmental changes that occur during infancy and early childhood.

iv) Draw educational implications of the developmental changes during early childhood.

Module 4: Parents and Community Involvement in Early Childhood Education

Indicative content

This module prepares student teachers to engage parents and community in the learning of their young children. It mainly covers the concepts related to parents and community involvement; the nature of parental and community involvement and partnerships; techniques to promote and encourage parental involvement and support of families; factors that hinder parental involvement; community mobilization techniques; roles and responsibilities of parents and community in ECE; strategies for working effectively with parents and communities.

Learning outcomes

By the end of this module, students should be able to:

i) Explain concepts related to parents and community involvement in ECE,

ii) Apply techniques to promote and encourage parental involvement and support of families,

iii) Devise measures to overcome factors that hinder parental involvement,

iv) Apply community mobilization techniques to involve parents in their children's education,

v) Devise strategies for working effectively with parents and communities.

Module 5: Special Needs and Inclusive Education

Indicative content

This module equips student teachers with knowledge and understanding of special needs and inclusive education so that they develop an inclusive attitude toward early childhood education. The content of this module includes Special Educational Needs (SEN); Special Needs Education (SNE); Inclusive education; Influencers of SEN in early childhood (mental retardation, physical disability, visual impairment, behavioral difficulties, hearing impairment, etc.); The effect of disability on the early childhood learning; The society's attitudes towards early child with disabilities; Responding positively to early child with special educational needs.

Learning outcomes

By the end of this module, students should be able to:

i) Demonstrate an understanding of SEN-related concepts,

ii) Analyze the effect of disability on the early childhood learning,

iii) Respond positively to early childhood learners with SEN,

iv) Communicate effectively reliable and coherent information regarding learners with special needs to relevant stakeholders.

Module 6: Play, movement, music, and drama for children.

Indicative content

The aim of this module is to enable student teachers use play, movement, music, and drama in the teaching and learning activities of young children. The content of this module includes mainly the following topics: Child plays (indoor and outdoor plays); Plays and games for child development; Safety issues in child's development; Values, purposes and goals of music for infants, toddlers, and preschool children; Basic elements of music (melody, beat, rhythm, and tonality); Appropriate methods and learning materials for young children; Music and movement resources for working with young children.

Learning outcomes

By the end of this module, students should be able to:

i) Explain concepts related to child's play, movement, and drama,

ii) Draw the importance of child play, movement, and drama in child's development,

iii) Demonstrate originality and creativity in child's play, movement, and dram,.

iv) Use age-appropriate child's play, movement, and drama for infants, toddlers, and preschool children,

v) Plan, present, and evaluate a music, movement, and drama experience for young children,

vi) Apply appropriate techniques to conduct and facilitate children's play, movement and drama with infants, toddlers, and preschool children.

Module 7: Language and Literacy in ECD

Indicative content

The aim of this module is to allow student teachers to develop language and literacy skills in early childhood learners. This module covers the following: The nature and functions of human language; Language development theories (Cognitivism, Behaviorism, Naturalism); Language acquisition during early childhood; Patterns of language use in early childhood; Notion of literacy skills; Importance of literacy in early childhood; Strategies for developing literacy to young children; Assessment of literacy skills in young children (speaking, listening, early reading and writing skills).

Learning outcomes

By the end of this module, students should be able to:

i) Describe the nature and functions of human language,

ii) Explain language development theories,

iii) Apply language development theories in teaching language and literacy skills to young children,

iv) Exhibit language and literacy skills in early childhood learners,

v) Effectively assess language and literacy skills of young children.

Module 8: Mathematics and numeracy in ECD

Indicative content

This module aims at allowing student teachers to develop mathematics and numeracy skills in early childhood learners. The content that is covered in this module includes: The nature of mathematics; Basics of mathematical concepts (operations, elementary and spatial geometry, measurements, approximations, estimations, elementary statistics); Factors affecting the development of mathematical concepts in young children; Notion of numeracy skills; Importance of numeracy in early childhood; Strategies for developing numeracy skills in young children.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the nature of mathematics and basics of mathematical concepts,

ii) Examine the factors affecting the development of mathematical concepts in young children,

iii) Exhibit numeracy skills,

iv) Apply different strategies of teaching numeracy skills to young children,

v) Assess numeracy skills of young children.

Module 9: Health Safety and Nutrition in Childcare Settings

Indicative content

This module aims at making student teachers aware of the health safety and nutrition conditions for the well-being of learners at early childhood stage. It encompasses the following topics: pre-natal, post-natal child health and health needs for child's holistic development; Health conditions for smooth development process; Early detection of childhood illness and disease; Preventive and curative measures for the promotion of health practices; Safety considerations in ECD settings; Appropriate diet for infants, toddler, and pre-school children.

Learning outcomes

i) By the end of this module, students should be able to:

ii) Discuss with strong arguments the pre-natal, post-natal child health, and health needs for child's holistic development.

iii) Describe health conditions for smooth development process,

iv) Diagnose childhood illness and disease,

v) Assess preventive and curative measures for promotion of health practices,

vi) Setting safe environment for smooth ECD services,

vii) Advise parents on appropriate diet for infants, toddler, and pre-school children.

Module 10: Arts, Craft and Materials development

Indicative content

This module equips student teachers with the necessary skills to teach young children Arts and Craft. The content that is covered in this module includes: The concept and objectives of teaching Art and Crafts to young children; Visual and performing arts; Principles and elements of child Art; skills and techniques to be developed in children's arts; Appropriate Art and Craft activities in ECD; Integration of Art and Craft in other learning areas; Designing and using Art and Crafts instructional materials; Choice of supportive and creative toys that meet children's interest; Types of toys and materials; Preparing materials for different developmental areas and different age-groups; Assessment of children's Art and Crafts work.

Learning outcomes

By the end of this module, students should be able to:

i) Dicuss the rationale of teaching art and craft to young children.

ii) Describe the principles and elements of child Art as well as Art and Crafts curriculum for early childhood.

iii) Design appropriate Art and Craft activities and materials.

iv) Integrate Art and Craft in other learning areas.

v) Assess children's art and crafts work.

vi) Use age-appropriate materials to support children's holistic development.

Module 11: Data Use for children's learning

Indicative content

The module aims at allowing student teachers to use data for informed decision making to improve children's learning. This module contains the following topics: Importance of data for early childhood teachers; nature of data collected in preschools; Ways of collecting data in preschools; Data sources in preschool; Data analysis; Informed decision making; Use of data to improve children's learning.

Learning outcomes

By the end of this module, students should be able to:

i) Explain the nature and importance of data in teaching and learning,
ii) Identify relevant source of data,
iii) Collect the data,
iv) Analyse the data,
v) Report the results,
vi) Take informed decisions to improve children's learning.

3.6 General Modules

Module 1: General English

Indicative content

The module aims to develop year one students' communicative competence in English as a medium of teaching and learning in higher education. The focus is on the practice of writing, speaking, listening, and reading geared towards the modules on offer in year one.

Learning outcomes

i) By the end of the module, students should be able to:
ii) Produce accurate and coherent texts in English on variety of current topics.
iii) Select relevant reading materials to use in order to perform various assignments.
iv) Make an individual presentation in English on any current topic.
v) Participate in group discussion in and outside class.
vi) Locate the areas of English language difficulties among peers.
vii) Detect general and specific information from the intermediate English listening materials.

Module 2: Introduction to Information and Communication Technology

Indicative content

This module of study identifies the essential knowledge, skills, and attitude that all students need to be active lifelong learners in an information technology intensive environment. The computer skills standard course of study involves the development of skills over time. These skills become building blocks with which to meet the challenges of personal and professional life. The module is designed to form the foundation for continuous learning with introduction to ICT, ICT fundamentals, advanced MS Office/OpenOffice (word, excel, access and PPT), Use of the Internet for research (e-Resources, OERs & MOOCs, digital library, Ethics (plagiarism, copyright, privacy), security of the data, emerging trends such as collaborative tools (social media & cloud services), ICT for specific subject, Practice I related to ICT fundamentals, MS applications, and Internet and Practical II related to Collaborative tools, social media and cloud computing services.

Learning outcomes

By the end of the module, students should be able to:

i) Utilize basic knowledge and skills of computers in learning practices.

ii) Apply MS Office suite & Open Office in daily life activities.

iii) Use the internet for research and sharing information.

iv) Integrate ICT in learning of different subjects.

v) Adapt to ever changing innovations and use ICT skills in long-life learning.

vi) Use computers in numerical and financial calculation of day-to-day life.

vii) Use ICT in mitigating global issues like climate change, conflict resolution, and global peace building.

viii) Use ICT learning opportunities such as e-learning to foster knowledge and skills development.

Module 3: Entrepreneurship for Educators

Indicative content

This module aims to equip students with the needed skills to integrate some learning activities and approaches fostering entrepreneurial mindsets towards the creation of new ideas and creative solutions. It facilitates the development of an entrepreneurial mind-set and equips students with necessary cutting-edge knowledge and skills vital for generating value in a knowledge-based economy. The module is designed to teach students how to start and manage a successful new business. This module covers a variety of topics, including ideation, opportunity identification, business model development, funding and management of new ventures, innovation, operations, and growth management, exit strategies and successful planning, marketing strategies, project management and legal and ethical issues concerning new venture management.

Learning outcomes

By the end of the module, students should be able to:

i) Raise awareness of self-employment as a career option,

ii) Explain the pathways for becoming an entrepreneur in a wide array of settings including large organization, start-ups, universities, government, intermediaries, and society,

iii) Describe the planning process, launching, and managing of new business ventures,

iv) Analyze key factors that contribute to a successful business plan, including market research, financial forecasting, and organizational strategy,

v) Apply financial analysis tools to evaluate the financial performance of a business, make informed investment decisions, and manage cash flow effectively,

vi) Develop leadership and management skills to effectively lead and motivate teams and drive business growth,

vii) Apply theory by leveraging theoretical insights for the development of the innovative enterprise,

viii) Communicate and pitch business plans to stakeholders such as investors, partners, and customers.

Module 4: Citizenship and Transformative Education

Indicative content

This module has been designed with the aim to foster active and responsible participation in democratic societies by developing knowledge, skills, and values related to civic education, integrity systems, human rights and citizenship education, conflict resolution and peace education. Citizenship and transformative education engage examination of power changes, promoting ethical values, cultivating empathy, and stimulating inclusiveness and diversity. The module stresses the importance of active learning, dialogue, and experiential opportunities that empower individuals to make informed decisions. It highlights key concepts such as identity, integrity, conflict, and peace. It focuses on personal and societal change by rising critical thinking and self-reflection.

Learning outcomes

By the end of this module, students will be able to:

i) Explain the concepts of citizenship, state-building, and national identity.

ii) Highlight the dynamics of Rwandan history in connection with citizenship, state-building, and national identity,

iii) Identify the mechanisms of promoting integrity in Rwanda,

iv) Explain the major theories, evolution, and core characteristics of human rights,

v) Identify the means of promoting and protecting human rights in Rwanda and beyond,

vi) Express a high degree of autonomy and integrity,

vii) Demonstrate full responsibility and respect for other people regardless of their origin, age, culture, religion, nationality, and gender,

viii) Apply models and various approaches to conflict resolution and peacebuilding.

PART IV

NATIONAL GUIDELINES FOR THE DESIGN AND IMPLEMENTATION OF BENCHMRAKED EDUCATION PROGRAMMES

Part IV: NATIONAL GUIDELINES FOR THE DESIGN AND IMPLEMENTATION OF BENCHMRAKED EDUCATION RELATED PROGRAMMES

4.1 Introduction

In Rwanda, education is not merely a process; it is the cornerstone of the nation's progress and development. Recognizing the pivotal role that educators play in shaping the future, the Higher Education Council (HEC) of Rwanda has taken significant strides in ensuring the highest quality of teacher education. As part of these endeavors, the HEC has developed comprehensive benchmarks for Bachelor of Education, Advanced Diploma of Education and Diploma of Education programmes.

In parallel, the National Guidelines for the Design and Implementation of Bachelor of Education, Advanced Diploma of Education and Diploma of Education Programmes in Rwanda have been crafted to provide a comprehensive framework for the development and implementation of these programs. These guidelines encompass the vital aspects of curriculum, pedagogy, assessment, and quality assurance.

4.2 Background to the guidelines

The development of these guidelines for education programmes has its genesis in the baseline study conducted by the Higher Education Council (HEC) in 2021 with pre-service teachers training in higher education institutions in Rwanda, and the Subject Review of Education programs conducted in 2019. The baseline study indicated that education-related programmes offered by Higher Learning Institutions (HLIs) in Rwanda are not harmonized[3].

The analysis of the existing Bachelor of Education programmes in many of the HLIs has shown discrepancies in the processes of development and delivery, which create dissimilarities in the knowledge, skills, and attitudes imparted to student-teachers and lead to discrepancies in the performance of in-service teachers. For example, it was observed that education modules that are taught in some HLIs are considered either as simple units of other modules, or exist with different names, or do not exist at all.

The HEC found that it is imperative to come up with a harmonized Bachelor of Education, Advanced Diploma of Education programme so as to tackle the imbalances observed in pre-service teacher training programmes offered in Higher Learning Institutions in Rwanda. Following the Law N° 010/2021 of 16/02/2021 determining the organization of education in Rwanda and different consultative workshops involving higher education stakeholders, HLIs, and decision-makers, the HEC designed benchmarks and harmonized the Bachelor of Education, Advanced Diploma of Education and Diploma of Education programme.

Learning outcomes and content for subject combinations were benchmarked nationally, regionally, and internationally. Thus, these guidelines aim to provide standards for HLIs in designing and effectively implementing education-related programmes in conformity with the

[3]HEC (2021). Baseline study on the capacity mapping of accredited education-related programs in Rwanda

standards set for pre-service teacher training programmes in Rwanda. Education-related programmes are structured into years and semesters based on prerequisites for modules.

4.3 Purpose of the guidelines

The purpose of these guidelines is to provide a reference tool for higher learning institutions to develop and effectively implement education-related programmes to ensure the quality of the graduates (i.e., teachers) for secondary education.

4.4 Awards

Depending on the Level registered for, a student who successfully completes an education-related programme will be awarded:

- Diploma of Education in Subjects
- Advanced Diploma of Education in Subjects
- Bachelor of Education with Honours in Subjects.

4.5 Graduate job profile

Being awarded a Bachelor of Education, Advanced Diploma of Education or Diploma of Education in the subject (s) is often a good start for a teaching career path.

- The graduate of the Bachelor of Education in Subject (s) will be allowed to teach the subject (s) in lower and upper secondary education. This graduate will be prepared to teach more in grades four up to six of secondary education.
- The graduate of the Advanced Diploma of Education in Subject (s) will be allowed to teach the subject (s) in lower and upper secondary education.
- The graduate of the Diploma of Education in Subject will be allowed to teach the subject (s) in lower secondary education.
- In addition to teaching careers, the graduates of the Bachelor of Education in subjects will be able to carry out research activities and participate in curriculum design and educational development activities.
- The graduates of a Bachelor of Education, Advanced Diploma of Education, or Diploma of Education in subjects will serve in school leadership and management, analyze curriculum and performance goals and provide recommendations for improvement of an educational institution.

4.6 Mode of delivery

The education-related programs must be delivered in two modes: fully face-to-face mode and blended mode of delivery. All students enrolled in education-related programs will be registered

as full-time students. The mode of delivery to be adopted by a higher learning institution should be approved by the regulatory agency.

4.7 Mode of attendance

The Education-related programmes under the developed benchmarks will be delivered through three different modes of attendance: day, holiday, and distance. The mode of attendance to be adopted by a higher learning institution should be approved by the regulatory agency.

4.8 Mode of attendance and Duration for Bachelor's Degree of Education

Day: Students enrolled in the day mode of attendance shall complete 530 credits. The duration of studies to complete a bachelor of education program is four (4) academic years or eight (8) semesters.

Holiday: Students enrolled in the holiday mode of attendance shall complete 530 credits. The duration of studies for a holiday mode of attendance is five (5) academic years or ten (10) semesters. For the effective implementation of the holiday mode of attendance, a higher learning institution should prepare a syllabus and homework activities to support students' self-learning. Only in-service teachers will be admitted in holiday mode of attendance.

Distance: Students enrolled in the distance mode of attendance shall complete 530 credits. The duration of studies for a distance mode of attendance is five (5) academic years or ten (10) semesters. For the effective implementation of the distance mode of attendance, a higher learning institution should prepare for every module a storyboard that stands for the scheme of work, a filled blended learning module development template that stands for the lesson plans developed by respecting the constructive alignment of learning outcomes, learning activities, and learning resources, an online platform to support students self-learning and monitor distance learning and assessment activities. Only in-service teachers will be admitted in the distance mode of attendance.

4.9 Mode of attendance and Duration for Advanced diploma of education

Day: Students enrolled in the day mode of attendance shall complete 365 credits. The duration of studies to complete an advanced diploma of education program is three (3) academic years or six (6) semesters.

Holiday: Students enrolled in the holiday mode of attendance shall complete 365 credits. The duration of studies for a holiday mode of attendance is four (4) academic years or eight (8) semesters. For the effective implementation of the holiday mode of attendance, a higher learning institution should prepare a syllabus and homework activities to support students' self-learning. Only in-service teachers will be admitted in holiday mode of attendance.

Distance: Students enrolled in the distance mode of attendance shall complete 365 credits. The duration of studies for a distance mode of attendance is four (4) academic years or eight (8) semesters. For the effective implementation of the distance mode of attendance, a higher learning institution should prepare for every module a storyboard that stands for the scheme of work, a filled blended learning module development template that stands for the lesson plans developed by respecting the constructive alignment of learning outcomes, learning activities and learning resources an online platform, to support students self-learning and monitor distance learning and assessment activities. Only in-service teachers will be admitted in the distance mode of attendance.

4.10 Mode of attendance and Duration for Diploma of education

Day: Students enrolled in the day mode of attendance shall complete 280 credits. The duration of studies to complete a diploma in education program is two (2) academic years or four (4) semesters.

Holiday: Students enrolled in the holiday mode of attendance shall complete 280 credits. The duration of studies for a holiday mode of attendance is three (3) academic years or six (6) semesters. For the effective implementation of the holiday mode of attendance, a higher learning institution should prepare a syllabus and homework activities to support students' self-learning. Only in-service teachers will be admitted in holiday mode of attendance.

Distance: Students enrolled in the distance mode of attendance shall complete 280 credits. The duration of studies for a distance mode of attendance is three (3) academic years or six (6) semesters. For the effective implementation of the distance mode of attendance, a higher learning institution should prepare for every module a storyboard that stands for the scheme of work, a filled blended learning module development template that stands for the lesson plans developed by respecting the constructive alignment of learning outcomes, learning activities, and learning resources, an online platform to support students self-learning and monitor distance learning and assessment activities. Only in-service teachers will be admitted in the distance mode of attendance.

4.11 Hosting Faculty/school/Centre

All teacher education programs run in different Rwandan HLIs must be hosted by a Faculty of Education or School of Education or a Specialized Centre.

4.12 Entry requirements/Admission criteria

An applicant for the education-related programme must have successfully completed secondary education in accordance with the Rwanda Qualifications Framework, with an average pass mark of 50% permitting entry to higher education.

An applicant for the education-related programme must fulfil the specific and additional admission criteria included in the documentation submitted for the accreditation of the programme. These requirements include but not limited to "have studied in secondary school, and passed the subjects related to the program they intend to study".

The applicant for holiday and distance modes of attendance shall present proof of employment as a teacher in primary or secondary education.

4.13 Upgrading

As per the Rwanda Qualification Framework (RQF), the Diploma is level 6, the Advanced Diploma is level 7, and the Bachelor's Degree is level 8. Thus, each programme is a standalone, and there is no upgrading from one level to another. Only credit transfer will be allowed.

Credit transfer should be done by equating the learning outcomes and contents between the completed level and the level applied for.

4.14 Programme development and approval

a) Programme development

One of the purposes of formulating benchmarks for education-related programmes is to support the HLIs in designing or redesigning the curriculum or programme. Any education-related programme to be designed should be informed by a "Needs assessment" and should be subject to a review every five (5) years of implementation. Programmes should be designed by qualified experts in the field of study with reference to HEC benchmarks and guidelines for the development of academic programmes, and with reference to Secondary School Subjects Combinations[4].

a) Programme Aims and Rationale

This section should briefly describe:

- Needs assessment results with clearly identified skills gaps,
- Link with the national development priorities, strategies, and the institution's mission and vision.

c) Programme learning outcomes

The program learning outcomes should be designed by qualified experts in the field of study and refer to HEC benchmarks and guidelines for the development of academic programmes.

[4] Government of Rwanda (2021). Ministerial Order N° 002/MINEDUC/2021 of 20/10/2021establishing curriculum in general, professional, and technical and vocational basic education.

The development of programme outcomes and module outcomes should be organized into the following level descriptors of the integrated Rwanda Qualifications Framework (RQF)[5]:

- Knowledge & understanding,
- Applied knowledge, understanding and practice,
- Generic cognitive skills,
- Communication, ICT and numeracy skills, and
- Autonomy, responsibility and working with others

[5]Government of Rwanda (2021). Ministerial Order N° 003/MINEDUC/2021 of 20/10//2021 determining Rwanda qualifications framework.

Table 2: The Level Descriptors of the Integrated RQF

Domain/ Level	Knowledge & understanding	Applied knowledge, understanding and Practice	General Cognitive Skills	Communication, ICT and numeracy skills	Autonomy, responsibility and working with others
Level 6 *(Ex: Diploma)*	Demonstrate broad knowledge, understanding, and awareness of /or work with: • The subject/discipline in general and substantial depth in their area(s) of study; • Some main theories, concepts and principles, and current issues and specialism; • The evolving/changing nature of knowledge and understanding; • The difference between explanations based on research-based evidence and other forms of explanations.	Be able to: • Apply knowledge and understanding in unpredictable contexts; • Use some of the basic and routine professional skills, techniques, practices, and/or materials associated with a subject/discipline in both routine and non-routine contexts; • Use a range of appropriate methods and procedures • Plan how skills will be used to address unfamiliar situations and/or problems and adapt these as necessary.	Develop the ability to: • Present and evaluate arguments on issues which are within the common understandings of the subject/discipline; • Use a range of approaches to solving/resolving defined and/or routine problems/issues within familiar contexts; • Have command of analytical interpretation of a wide range of data; • Use a range of approaches to formulate evidence-based solutions/responses to defined and /or routine problems/ issues • Evaluate evidenced-based solutions/responses to defined and /or routine problems/ issues.	Demonstrate the ability to: • Communicate and present effectively reliable and coherent information using appropriate professional conventions and formats for a given context/subject/discipline; • Use appropriate technological tools, and numerical and graphical data to measure progress and achieve goals/targets.	Demonstrate and exercise ability in: • Taking some initiative and independence in carrying out defined activities at a professional level; • Taking some managerial responsibility for the work of others within a defined and supervised structure; • Managing limited resources; within defined areas of work • Taking account of own and others, roles and responsibilities in carrying out and evaluating tasks; • Working with others in support of current professional practice under guidance.
Level 7 *(Advanced Diploma)*	Demonstrate and/or work with: • A broad knowledge of the scope, defining features, and main areas of a subject/discipline; • Detailed knowledge in some areas; • An understanding of a limited range of core	Demonstrate the ability to: • Use a defined range of principles, techniques, practices, standards, and methods associated with a subject/discipline; • Apply knowledge, skills, and	Demonstrate the ability to: • Undertake critical analysis, evaluation, and/or synthesis of ideas, concepts, information, and issues which are within the common understandings of the subject/discipline; • Use a range of approaches to formulate evidence-based solutions/responses to defined and/or routine	Demonstrate the ability to: • Develop and communicate ideas and opinions in well-formed arguments using appropriate academic, professional, or occupational	Demonstrate ability to: • Exercise autonomy and initiative in some activities at a professional level; • Take significant managerial or supervisory responsibility for resources and the work of others in defined areas of work; • Take the lead on planning

	theories, principles, and concepts; • Outline knowledge and understanding of some major current issues and specialism, research, and equivalent scholarly/academic processes.	understanding in a broad range of complex technical activities; • Carry out routine lines of inquiry into socio-technical; problems and issues; • Adapt routine practices within accepted standards.	problems/issues; • Critically evaluate evidence-based solutions/responses to defined and/or routine problems/issues.	discourses; • Adapt personal interaction style to a given audience; • Use a range of standard applications to process and obtain data; • Identify the need of IT solutions, appropriate methodologies, and techniques according to the context requirements; • Communicate effectively using written and spoken professional language in a professional context;	in familiar or defined contexts; • Take a continuing account of your own and others' roles, responsibilities, and contributions in carrying out and evaluating tasks; • Work in support of current professional practice under guidance.
Level 8 *(Ex: BSc, BA, B.Tech)*	**Demonstrate systematic understanding of** An advanced theoretical and technical knowledge within a discipline or professional context; • Arange of established techniques of inquiry or research methods.	**Be able to:** Explore a guided range of principles, techniques, practices, standards, and methods associated with a subject/discipline; • Execute a defined scope of research projects methodically and purposefully; • Apply a defined	**Be able:** Critically identify, define, conceptualize, and analyze complex/ professional level problems and issues. • Identify and solve professional Level problems in familiar and unfamiliar contexts; • Make judgments where data/information is limited and/or comes from a range of sources;	**Demonstrate ability to:** • Present and communicate; academic, professional or occupational ideas, problems, and solutions in a variety of formats to both specialist and non-specialist	**Demonstrate ability to:** Take personal responsibility for decision making; • Act autonomously in professional and equivalent activities • Work with others to bring about change; development and/or new thinking; • Reflect on your own

		range of research and innovation methodologies to identify, define and develop products in an area of specialization; • Demonstrate awareness in the application of knowledge, together with a practical understanding of established techniques of applied research for innovation and product development.	• Demonstrate technical skills to use published research for new products; • Demonstrate some originality and creativity in dealing with professional issues; • Offer professional-level insights, interpretations, and solutions to problems and issues; • Critically review and consolidate knowledge, skills, and practices in a subject/ discipline.	audiences; • Apply technological/computer and numerical tools for analysis and modeling different types of solutions; • Apply in a self-critical manner, learning strategies to effectively address his/her professional and ongoing learning needs.	learning needs and take responsibility for gaining the necessary knowledge and/or skills.

d) Programme development forms

Any designed or redesigned programme should have a programme proposal form (PPF), programme specification form (PSF), and a module description form (MDF).

e) Programme approval

The designed or redesigned program should be validated by internally and externally qualified experts and approved by the key HLI organs.

f) Programme accreditation

The new or reviewed programme should be accredited by the agency in charge of institutions of higher learning before its implementation, based on the report of physical assessment and benchmarks.

g) Programme structure

The programme structure of any new or reviewed education-related programme should be aligned with the Higher Education Council's benchmarks for education-related programmes. The Bachelor of Education programme comprises 530 credits, including 150 credits of education modules, 40 credits of teaching practicum, 50 credits of general modules, 280 credits of subject-specific modules (140 credits for subject 1 and 140 credits for subject 2) and 10 credits of educational research project. The Advanced Diploma in Education comprises 365 credits, including 75 credits of education modules, 20 credits of teaching practicum, 30 credits of general modules, and 240 credits of subject specific modules (120 credits for subject 1, 120 credits for subject 2). The Diploma of Education comprises 280 credits, including 55 credits of education modules, 15 credits of teaching practicum, 30 credits of general modules and 180 credits of subject specific modules (90 credits for subject 1 and 90 credits for subject 2).

A Higher Learning Institution is allowed to add a ten (10) credits module related to its vision, mission and core values.

Module code should start with a maximum of three letters indicating an acronym of the title of the programme (i.e., a programme with the title Bachelor of Education in Mathematics-Economics will be coded as EME).

The module code representing the title of the programme should be followed by the level based on the Rwanda qualifications framework (i.e., a diploma of education will be coded 6, an advanced diploma will be coded 7, and a bachelor's degree will be coded 8). Therefore, the Bachelor of Education in Mathematics-Economics will be coded as EME**8**.

The module code representing the level of the programme should be followed by the year (i.e., 1, 2, 3, 4, etc.). Therefore, year 1 will be coded as EME8**1**.

The module code representing the year should be followed by a code for the semester (i.e., 1, 2, etc.). Therefore, semester 1 will be coded as EME81**1**.

The module code representing the semester should be followed by a code for the module number (i.e., 01, 02, 03, 04, 05, 25, etc.). Therefore, module 5, for example, should be coded as EME811**05**. Modules should be coded from the first to the last module of the programme (i.e., 01, 02,...24, etc.).

h) Indicative content

The learning outcomes and content of all education-related programmes to be developed by Higher Learning Institutions should be aligned with the HEC education-related benchmarks. A Higher Learning Institution is allowed to improve and update the indicated content to cope with new changes that may be found necessary in the field of study.

i) Academic staff

To be allowed to run any education-related programme, a Higher Learning Institution must have an adequate number of qualified staff, as specified by the Ministry of Education and the Higher Education norms and standards. The ratio of staff-students should be 1:21, and Part lab/part classroom should be 1:17 as per the Higher Education Institutional infrastructure and academic standards.

k) Infrastructure and facilities

Infrastructure

Higher Learning Institutions should provide sufficient infrastructure and space to make the institution a conducive environment for learning. HLIs should comply with the norms and standards on infrastructure set by the Ministry of Education and the Higher Education Council to ensure effective teaching-learning and a conducive environment for learning, including for students with disabilities.

Facilities

Higher Learning Institutions should have sufficient facilities for the successful implementation of the education-related programme. The higher learning institution should comply with the standards and guidelines on facilities for learning set by the Ministry of Education and the Higher Education Council. These include, among others, a demonstration school, computers, internet connectivity, projectors, water, electricity, whiteboards, desks, equipped libraries, laboratory equipment, etc.

Demonstration School

A demonstration school is a school used to demonstrate educational methods to student-teachers and provide practice in teaching. It is compulsory for the Higher Learning Institution delivering education-related programs to have a demonstration school where students visit class lessons and practice teaching.

Programme funding

HLIs that intend to develop an education-related programme should have the required funds to run the program and ensure its quality, effective implementation, and sustainability. The higher learning institutions should comply with the norms and standards for the effective running of an education-related program as set by the regulatory agency.

Projected number of students

To ensure the training of qualified teachers, higher learning institutions should enroll students in programmes by respecting the norms and standards set by the regulatory agency on student-class ratios (classroom space: 1 m^2 per student for campus-based) and ratio staff-students (1:21, and Part lab/part classroom should be 1:17).

4.15 Programme implementation

A higher learning institution should implement only an accredited education-related programme (s). The following requirements should be considered for the implementation of the programme.

Teaching and learning strategy

Teaching and learning will be done through lectures, practical in labs, microteaching, class observations, school demonstrations, field visits, problem-based learning, role plays, and laboratory practicals where applicable. In addition, teaching practice and school/industrial attachments should be strengthened to ensure students' ability to facilitate learning effectively. For a module, the contact hours should be 48% of the total number of hours allocated to the module, and the other practical and self-working-related hours should be 52% of the notional hours of learning.

Teaching practice

Teaching practice is an opportunity given to student-teachers to try the art of teaching in the actual teaching and learning environment before getting into the real-world of a teaching career. The Higher Learning Institution should ensure that teaching practice is well conducted to prepare student-teachers for school attachment.

School attachment

School attachment is an opportunity given to student-teachers to work in a professional work environment, apply learned knowledge, and acquire real work experience. The school attachment should be organized through different steps, namely: programme management, budgeting, pre-placement, in-placement, post-placement, supervision, and evaluation, as described in the national guidelines for student industrial attachment.

As per the HEC benchmarked programme structure, for the Bachelor of education, there shall be three school attachments: school attachment 1 should last one (1) month, school attachment 2 should last two (2) months, and school attachment 3 should last three (3) months. For the Advanced Diploma of Education, there shall be two school attachments: school attachment 1 should last one (1) month, and School attachment 2 should last three (3) months. For the Diploma of Education, there shall be one school attachment, which will last for three (3) months.

Assessment of teaching practice and school attachment

The pass marks for teaching practice and school attachment shall be 60%. The assessment of teaching practice and school attachment should be based on the following components:

Component	Weight (%)
Formative assessment [by the mentor (50%) and academic supervisor (50%)]	40
Summative assessment [by the mentor (50%) and academic supervisor (50%)]	40
School attachment report	20

The assessment of school attachment shall focus on key aspects such as lesson planning, context for learning, lesson delivery, differentiation of learning and assessment, classroom management and professionalism.

Distribution of contact hours per module

- A module of 5 credits (50 hours) should have a minimum of 24 contact hours.
- A module of 10 credits (100 hours) should have a minimum of 48 contact hours.
- A module of 15 credits (150 hours) should have a minimum of 72 contact hours.
- A module of 20 credits (200 hours) should have a minimum of 96 contact hours.

4.16 General modules

The following general modules are similar for a Bachelor's Degree of Education, Advanced Diploma of Education and Diploma of education in Subjects:

- Citizenship and transformative education
- General English and English for specific purpose
- Entrepreneurship for educators
- Information Communication Technology

4.17 The module of Subject teaching method

A similar module of Subject teaching method will be applied to a Bachelor of Education, Advanced Diploma of Education and Diploma of Education.

4.18 Model lesson plan (s)

The students should be familiarized to prepare lesson plans using the standard model lesson plans of competence-based curriculum provided by the Rwanda Education Board (REB) to ensure that student-teachers or graduates of the education-related programmes are able to develop lessons using that REB model lesson plans (see the REB model lesson plans at https://www.reb.rw/fileadmin).

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Appendices

Appendix 1: Comparison of education modules offered in Rwanda with IUCEA benchmarked education modules

S/N	IUCEA	UR	INES	KP	AUCA	PIASS	IPB	MKU	EAUR	CUR	ICK	ULK
1	Education Planning	X	X	X	v	NA	NA	x		N/A		NA
2	Comparative (and International) Education	X	X	V	v	NA	V	AD	X	NA		NA
3	Contemporary issues in education planning and management	NA	NA	NA		NA	NA	NA	X	NA		NA
4	Curriculum Development	V	X	V		v	V	AD	V	V		V
5	Economics of Education	X	X	V	v	NA		V	X	NA		NA
6	Education Administration and Management	AD	X	AD	v	NA	AD	X	V	NA		V
7	Educational Psychology	V	X	V	v	v	V	V	X	AD		NA
8	Research Methods in Education	V	X	AD	v	V	AD	V	X	V		V
9	Entrepreneurship in Education	V	NA	AD	v	N/A	V	V	X	NA		V
10	General Methods and Principles of Teaching	AD	X	AD	v	AD	AD	NA	V (AD)	AD		AD
11	Guidance and Counselling	V	X	X	NA	N/A	V	AD	X	NA		V
12	History of Education	X	X	AD	X	N/A	NA	x	X	NA		NA
13	Human Growth and Development	X	X	X	v	NA	NA	AD	V	X		AD

			(AD)									
14	Introduction to Psychology	X	X	V		NA	V	AD	AD	X		NA
15	Learning and motivation	X	NA	X	NA	NA	NA	NA	V	NA		NA
16	Measurement and Evaluation	X	X	X	x	NA	NA	V	V	X		V
17	Methods (General Methods and Subject specific methods)	V	V	V	NA	v	AD	AD	V	X		NA
18	Philosophy of Education	X	X	AD	v	x	NA	x	V	NA		NA
19	Professional Ethics of Teacher	X	NA	AD	NA	AD	NA	NA		NA		AD
20	Psychology of adult learning	NA	NA	X	NA	NA	NA	NA	X	NA		NA
21	Research Methods in Education	V	X	AD	v	v	AD	V	V	AD		V
22	Social and Adolescent Psychology	NA	X	X	NA	NA	NA	NA	X	NA		NA
23	Sociology of Education	X	NA	V	v	x	NA	V	X	NA		NA
24	Special Needs Education	X	X	NA	NA	X	NA	AD	X	X		AD
25	Communication Technology in Education	AD	X	AD	AD	AD	AD	AD	V	NA		AD

Notes: **V**= Available as it is, **X**= Available as unit of a module, **NA**= Not available, **AD**= Available with different name

Appendix 2: Comparison of Citizenship and Transformative Education module content offered in Rwanda and Beyond

No	IUCEA benchmarked modules	UR	ULK	INILAK	PIASS	University of York	Mekelle University	Bahiirdar University	University of Gonda	University of Zambia	Makerere University	Central Luzon State University
1	Citizenship and Transformative Education	**V**	**X**	**X**	**X**	**AD**	**AD**	**AD**	**AD**	**AD**	**NA**	**X**

Appendix 3: Comparison of Mathematics module content offered in Rwanda and beyond

Areas	Modules	AUCA	KP	ULK	EAUR	UR-CE
Algebra	Fundamentals of algebra	NA	v	V		AN
	Multilinear Algebra			V		V
	Group Representation Theory	NA	V	NA		
	Linear Algebra and Geometry	V	NA	NA		V
	Abstract algebra	V				
Analysis/Calculus	Fundamentals of calculus	AN	AN	V		
	Real multivariable calculus	AN	V	V		V
	Real Analysis II	V	V	NA		AN
	Ordinary differential equations	V	V	V		V
	Partial differential equations	V	V	V		V
	Complex Analysis	V	V	V		V

Geometry	Analytical Geometry	V	V	NA		V
	Differential Geometry and Lie Algebra		V	x		X
Numerical Analysis	Numerical analysis and programming	V	V	V		
Statistics & Probability	Stochastic analysis and time series	VNone	VV	VV		V
	Inferential Statistics	None	None	None		V
Miscellaneous	Intro to Functional Analysis & Topology	V	V	None		
	History & Philosophy of Mathematics & Physics	None	V	None		
	Scientific Research Techniques and History of Mathematics	None	None	None		V
	Mathematical Methods (Integral Equation)					

Appendix 4: Comparison of Biology modules offered in Rwanda and beyond (University of Rwanda, Kenyatta University (KU), University of Maryland/USA, Sydney University (SU)/Australia, modules.

S/N	Benchmarked modules (University of Rwanda, Kenyatta university, UMBC, Sydney University)	Credits	UR-CE	KP	IPB	EAUR	ULK	KU (EAC)	University of Maryland (USA)	SU (Australia)
1	Evolutionary Biology and Cell Biology	15	V	V	V	V	V	V	X	V
2	Genetics	10	V	V	V	V	V	V	AV	V
3	Animal Diversity	10	V	AV	AV	V	V	AV	AV	AV
4	Fungi & Plant Diversity	10	V	AV	AV	AV	AV	X	AV	AV
5	Plant Anatomy and Physiology	10	V	AV	AV	X	AV	AV	NA	AV
6	Animal Anatomy	10	AV	AV	AV	X	AV	AV	NA	AV

7	Animal Physiology	10	AV	AV	AV	X	AV	AV	NA	
8	Parasitology	10	V	AV	V	X	V	NA	NA	X
9	Molecular Biology and Biotechnology	10	V	V	AV	NA	V	NA	AV	AV
10	Developmental Biology	10	V	AV	V	NA	V	NA	NA	V
11	Human Biology and Nutrition	10	V	V	V	X	V	NA	AV	V
12	Microbiology and Immunopathology	10	V	V	V	AV	AV	AV	V	V
13	Ecology and animal Behavior	15	V	AV	AV	AV	AV	AV	AV	AV

Appendix 5: Comparison of Chemistry modules offered in Rwanda and beyond [Kenyatta University (Kenya), UNIVERSITY OF EDUCATION, WINNEBA (GHANA), Oxford University (USA), Utah Valley University (USA), Tezpur University (Asia, India), UCAS (London Metropolitan University) (UK, EU)]

No	**Benchmarked modules (Kenyatta university (EAU), Oxford University, Utah Valley University (USA), Tezpur University (Asia, India), UCAS (London Metropolitan University) (UK, EU)**	**Universities offering Education (with chemistry) in Rwanda**			
		UR	**KP**	**EAUR**	**ULK**
1	Mathematics for Scientists	V	V	NA	V
2	Physics for scientists	NA	V	NA	NA
3	General Chemistry	V	V	V	V
4	Organic chemistry I	V	X	X	X
5	Physical chemistry I	V	X	X	X
6	Electrochemistry	V	V	V	V

7	Analytical Chemistry I	V	V	V	V
8	Organic Chemistry II	X	X	X	X
9	Physical chemistry II	X	NA	X	X
10	Polymer chemistry	NA	NA	X	NA
11	Transition metals and Coordination chemistry	V	NA	X	X
12	Biochemistry	V	X	X	V
13	Analytical chemistry II	NA	NA	NA	NA
14	Nuclear and radiochemistry	X	NA	NA	NA
15	Industrial and Environmental Chemistry	X	X	NA	X

Appendix 6: Comparison of Computer Science modules offered in Rwanda with IUCEA benchmarked Computer Science modules

S/N	IUCEA benchmarked modules	UR	AUCA	IPB	EAUR	ULK	ISPG	KIU	IUCEA

1	Computer Systems and maintenance	AD	X	V	X	AD	AD	AD	V
2	Data structures and Algorithms with C++	X	V	V	NA	V	X	V	V
3	Databases Management Systems and VB.Net	V	X	X	X	X	X	X	X
4	Computer networks	V	V	AD	A	V	AD	X	V
5	Object Oriented Programming with Java	V	V	AD	X	V	X	V	V
6	Information and network Security	X	NA	AD	NA	NA	AD	NA	V
7	Web Programming	V	NA	AD	X	V	AD	AD	V
8	Software Engineering	X	NA	X	X	V	V	V	V
9	Mobile Applications programming	X	NA	NA	NA	NA	X	NA	V
10	Operating Systems	V	V	V	V	V	V	V	V
11	Artificial Intelligence	X	NA	NA	V	X	X	V	V
12	Machine learning with Python	NA	NA	NA	NA	NA	NA	NA	V
13	Computer Graphics and Multimedia	V	NA	V	V	V	V	NA	V
14	Virtual Reality and Emerging Technologies for Education	NA	NA	NA	NA	NA	NA	NA	V

Appendix 7: ECD benchmarked modules

No	**UR**	**Kenyatta University (Kenya)**	**Turku university (Finland)**	**Monash University (Australia)**	**Unisc (Australia)**	**Mount Kenya University**	**James cook university (Australia)**	**Mississippi state university**	**Jaramogi Oginga Odinga University (Kenya)**	**Approved Title**

1	Children with Special Needs in Early Childhood Educational Settings.	1. Exceptional children 1. Exceptional children 2. Mainstreaming of special children 3. Behavior disorders in children 4. Research in Children and Family studies			1. Inclusive Practices and Intervention in Early Learning 2.Professional Experience: Differentiated Practice		1. Inclusive Education: Differentiated Learning for Students with Special Needs and Abilities 2. Students with Reading Difficulties		Introduction to Special Educatio Early Childhood Education for Children with Special Needs	Children with special needs in early childhood development
2	Language Development and Literacy	1.Language for early childhood education 2.Language methods for early childhood education 3 Literature in early childhood education	1.Development and pedagogical support of children's language and interaction skills	1Children's Literature, Storytelling and the Arts 2.Children's Literacy Development	1.Teaching English: Curriculum and Pedagogy 2.English Language and Literacy 3.Teaching Reading and Writing		1.Foundations of Language and Literacy in Education		1.Communication Skills 2.Language Development and Language Activities 3.Language and Literacy Curriculum, 4.Instruction and Assessment	Language development and literacy in early childhood development /education

3	Arts and Craft	Art and craft methods Methods of teaching music Introduction to art and craft	Music Edu Visual Arts 1. Visual arts Education Arts, and Physical Education Development and Pedagogical Support Introduction to Craft, Design and Technology Education in Early Childhood Education	Art, Environment and Community	Teaching Arts in the Early Years Creative		Early Childhood Arts Education		1.Creative Activities 2.Creative Activities Curriculum 3.Instruction and Assessment	Arts and Craft teaching in early childhood education

4	Mathematics and science for ECE	1.Methods of teaching science and mathematics 2.Science and mathematics for early childhood education	1.Mathematics in Early Childhood and Pre-Primary Education 2.Introduction to Educational Science	1.Learning about Patterns, Shapes and Numbers through Play 2.investigating Our World: Science, Technology and the environment	1.Foundations of Numeracy 2.Teaching Science in the Early Years 3.Teaching Mathematics in the Early Years		1.Early Childhood Mathematics and Numeracy 2.Teaching Mathematics and Numeracy in Primary and Early Childhood Settings 3.Science Education for Early Childhood 4.Early Childhood Mathematics and Numeracy 2		1.Mathematics Activities 2.Science Activities in ECE 3.Mathematics Curriculum, Instruction and Assessment	Mathematics and science for ECE

5	Social studies for ECE	1.Social studies 2.Social interaction in early childhood development	1.Environmental Studies in Early Childhood and Pre-Primary Education						1.Environmental Education 2.Educational Environments 3.Social Studies Activities 4.Social Interaction in Early Childhood Education 5. Social Studies Curriculum, Instruction and Assessment	Social studies for ECE
6	Community and Parental involvement	1.Role of family in a changing society 2.Community education and mobilization		Learning with Children, their Families and Communities	Professional Experience: Communities and Partnerships				1.Technology, Media and Community based education for Young Children 2.Community Education and Mobilization 3.Role of Family in a Changing Society	Parents and community involvement in early childhood education

7	Play and Safety Issues in ECE	Indoor and outdoor play activities	1.Co-Operation in Early Childhood Education	1.Learning Through Play Pedagogies	1.Sustainability Through Play and Pedagogy 2.Expression and Play through the Arts				1.Indoor and Outdoor play 2.Music and Movement Activities 3.Music and Movement Curriculum Instruction and Assessment 4.Physical and Psychomotor Activities	Play activities in early childhood education
8	Health and Nutrition for families	1.Health education and practices 2.Foods and nutrition education 3.Maternal and child nutrition 4.Feeding programs	1.Physical and Health Education	1Health and Physical Wellbeing in the Young Child			1.Health and Physical Education for Early Childhood 2.Early Childhood Education and Care 1 3.Early Childhood Education and Care 2	1.Children's Health, Safety, and Guidance	1.Health Education and Safety practices 2.Feeding programs 3.Maternal, Child Health and Nutrition	Children's health care in early childhood education

9	Theory and Practice of Thematic Integrative Methods									Thematic instructional pedagogy in early childhood education
10	Rights of children and their welfare					1.Legal matters in Early Childhood Education				Children's rights and advocacy
11	Administration and supervision of early childhood education					1.Monitoring and Evaluation of ECD				Administration and supervision of instruction in early childhood instruction
12	Child Development	1.Child development I 2.Child development II								Child growth and development

13	Philosophical, Historical Foundations and Policy of Early Childhood	1.Philosophical and sociological foundations 2.Historical development of early childhood education							Introduction to Early Childhood Education	Foundations and theories of early childhood education
14	Assessment and Evaluation of young children	1.Statistics, test and measurements 2. Screening procedures in children ECE					1.Using Data for Learning 2.Assessing learning		1.Instruction and Assessment 2.Educational Tests and Measurements	Children' assessement and instructional evaluation
15	Computer skills	1.Instructional media	1.Introduction to Information Technology, 2.Digital Learning and Teaching and Media Education		1, Teaching with Technology		1.Technologies Across the Curriculum			Instructional technology in early childhood education

16	Material development							Uses materials appropriately in the classroom and other professional settings	Material Development for ECE	Material development for ECE
17						1.General methods of teaching in ECD				General methods of teaching in ECE
18		1 Guidance and Counselling				Guidance and Counselling in ECDE				Guidance and Counselling in ECE

Appendix 8: Comparison of English language education modules offered in Rwanda and beyond

No	IUCEA benchmarked modules	UR-CE	INES	IPB	ICK	ULK	UDM-TZ
1	Proficiency in Written and Spoken English-I	AD	AD	V	V	AD	AD
2	Linguistics and Grammar of English	AD	V	V	V	V	NA
3	World English Literature	AD	V	V	V	V	AD
4	Morphology and Syntax of English	NA	X	NA	V	AD	V
5	Proficiency in Written and Spoken English-II	AD	AD	V	V	AD	AD

6	Sociolinguistics	V	AD	NA	V	V	V
7	Semantics, Lexicology and Pragmatics of English	AD	V	NA	V	V	NA
8	Study of Major Literary Genres	AD	NA	NA	V	NA	NA
9	Discourse Analysis of English	NA	NA	NA	V	AD	AD

Appendix 9: Comparison of French modules offered in Higher Learning Institutions in Rwanda

No	Module title	UR	INES	KP	AUCA	ULK	ICK
1	Introduction à la langue et à la linguistique françaises	V	V	AD	AD	V	NA
2	Introduction à la littérature française	V	V	AD	AD	V	NA
3	Grammaire française	V	AD	AD	AD	V	AD
4	Linguistique et grammaire textuelle	V	X	AD	NA	V	NA
5	Littérature africaine d'expression française	V	X	AD	NA	NA	NA
6	Production écrite en français	V	X	AD	NA	V	AD
7	Linguistique appliquée à l'enseignement du français	V	NA	AD	NA	V	NA
8	Stylistique française et création littéraire	V	NA	AD	NA	V	NA
9	Sémantique, lexicologie et traduction	V	NA	AD	NA	AD	AD
10	Eléments d'analyse du texte littéraire	V	NA	AD	AD	AD	NA
11	Lecture de textes en classe de FLE	V	X	AD	NA	NA	NA

Appendix 10: Comparison of Geography modules offered in 9 universities of Rwanda and 4 universities from Africa, 1 USA and 1 UK

No	Benchmarked modules	UR-CE	UR-CST Envt planning	KP	EAUR	ICK	AUCA	IPB	MKU	ULK	U Nairobi	UoG	York univ	Leeds univ
1	General Human Geography	V	V	V	V	NA	NA	NA	NA		V	V	NA	NA

2	General Physical Geography	V	X	V	V	V	X	V	V	X	V	V	NA	NA
3	Geography of Rwanda Content	V	V	V	NA	V	V	NA	V	X	NA	NA	NA	NA
4	Zonal Physical Geography	V	V	V	V	V	X	V	AD	V	NA	NA	NA	NA
5	Regional Geography	V	V	X	X	V	X	NA	X	X	X	NA	NA	NA
6	Rural - Urban Geography	V	V	NA	X	V	V	AD	X	V	NA	NA	NA	NA
7	Environmental Geography	V	V	V	V	V	V	V	V	X	NA	V	NA	NA
8	Cartography and GIS Content	V	V	NA	V	V	X	AD	X	X	X	NA	V	
9	Regional Planning and Development	V	V	NA	NA	V	X	V	V	X	NA	NA	NA	NA
10	Research Methods in Geography	V	V	X	V	X	V	NA	NA	X (AD)	V	NA	V	V
11	Tropical Hydro-Geomorphology	V	X		V	AD	X	AD	NA	V (AD)	NA	NA	NA	NA
12	Geographical thought and approaches to science	NA	V	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	Local economic development	X	V	X	X	X	X	X	X	X	NA	NA	NA	NA
14	Natural resources planning and management	NA	V	NA	NA	NA	NA	NA	NA	NA	V	NA	NA	NA

15	Hazards and disaster risk analysis and management	NA	V	NA	NA	NA	NA	NA	NA	X	NA	NA	NA	NA
16	Project planning and management	NA	V	NA	X	X	X	X	X	X	NA	NA	NA	NA
17	Economic Geography	X	X	NA	X	X	X	X	X	X	V	NA	NA	NA
18	Population Geography	X	X	NA	X	X	X	X	X	X	X	NA	NA	NA
19	General Introduction to Geography	X	X	NA	X	X	X	X	X	X	NA	NA	NA	NA
20	Introduction to Geology	X	X	NA	X	X	X	X	X	X	NA	NA	NA	NA
21	Pedology	X	X	NA	X	X	X	X	X	X	NA	NA	NA	NA
22	Structural Geomorphology	X	X	NA	X	X	X	X	X	X	V	NA	NA	NA
23	World Geography & Contemporary Issues	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24	Introduction to spatial planning	X	V	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25	Urban and Political Geography	X	X	NA	V	X	X	X	X	X	NA	NA	NA	NA
26	Environment, climate change & sustainable development	X	V	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27	Environmental planning and	X	V	NA	X	X	X	X	X	X	NA	NA	NA	NA

	management													
28	Geography of Natural Resources	NA	V	NA	V	NA	NA	NA	NA	NA	NA	NA	NA	NA
29	Statistics for geography	X	V	NA	X	X	X	X	X	X	NA	V	NA	NA
30	Climatology and hydrology Hydrology and watershed management	X	V	NA	X	X	X	X	X	X	NA	NA	NA	NA
31	Arid and semi-arid lands	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA	NA	NA
32	Geography or recreation and tourism	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA	NA	NA
33	Agriculture Geography	X	X	NA	X	X	X	NA	X	X	V	NA	NA	NA
34	Settlement geography	X	X	NA	X	X	X	NA	X	X	V	NA	NA	NA
35	Computer Technics in Geography	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA	NA	NA
36	Industrial geography	X	X	NA	X	X	X	X	X	X	V	NA	NA	NA
37	Transport geography	X	X	NA	X	X	X	X	X	X	V	NA	NA	NA
38	Political geography	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	V	NA	NA
39	Urban Geography	X	X	NA	X	X	X	X	X	X	V		NA	NA
40	GIS and laboratory analysis	X	X	NA	X	X	X	X	X	X	X	V	NA	NA
41	Advanced data management,	X	V	NA	X	X	X	X	X	X	X	V	NA	NA

	modelling, interview and interpretative methods													
42	Environmental geoscience	NA	V	NA	NA	NA	NA	NA	NA	NA	NA	V	NA	NA
43	Physical Geography I: Atmosphere, Oceans and the Geosphere	X	X	NA	X	X	X	X	X	X	X	X	V	
44	Physical Geography II: Biogeography, Ecology and Scales of Change	X	X	NA	X	X	X	X	X	X	X	X	V	NA
45	Human Geography I: Cultures, Economies, Histories	X	X	NA	X	X	X	X	X	X	X	X	V	NA
46	Human Geography II: Politics, Society, Development and Environment	X	X	NA	X	X	X	X	X	X	X	X	V	NA
47	Geographical Techniques II			NA									V	NA
48	Geographical Field Training	X	X	NA	X	X	X	X	X	X	X	X	V	NA
49	Environmental Systems: Processes and Sustainability	X	X	NA	X	X	X	X	X	X	X	X	V	NA
50	Earth Surface Processes and	X	X	NA	X	X	X	X	X	X	X	X	V	NA

	Hazards													
51	Environmental Change	X	X	NA	X	X	X	X	X	X	X	X	V	NA
52	Biogeography	X	X	NA	X	X	X	X	X	X	X	X	V	NA
53	Political Geography	NA		NA									V	NA
54	Cities: Economies and Ecologies	X	X	NA	X	X	X	X	X	X	X	X	V	NA
55	Cultural Geographies of the Modern World	NA	X	NA	X	X	X	X	X	X	X	X	V	NA
56	Perspectives on Development	X	X	NA	X	X	X	X	X	X	X	X	V	NA
57	Environmental Systems: Processes and Sustainability	X	X	NA	X	X	X	X	X	X	X	X	V	NA
58	Earth Surface Processes and Hazards	X	X	NA	X	X	X	X	X	X	X	X	V	NA
59	Coast and Estuarine Management	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
60	Global Warming	X	X	NA	X	X	X	X	X	X	X	X	V	NA
61	Wetland Environments: Process and Policy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
62	Managing River Environments	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
63	Glacial Environments	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
64	Digital Landscapes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
65	Arid Africa		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA

66	Mammals in a Changing World	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
67	Volcanoes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
68	Regeneration and Urban Policy	X	X	NA	X	X	X	X	X	X	X	X	V	NA
69	Geography of Commodities	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
70	Post-Capitalist Cities	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
71	Geopolitics of Media and Communications	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
72	Exploration, Science and Making of Geography	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
73	Geography, Museums and Collections	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
74	Creative Geographies	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
75	Gender & Development	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
76	Cities and Development in the Global South	X	X	NA	X	X	X	X	X	X	X	X	V	NA
77	Mobilities	X	X	NA	X	X	X	X	X	X	X	X	V	NA
78	Challenging Development? Disasters, Conflict and Human	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA

	(in)Security													
79	Critical GIS	X	X	NA	X	X	X	X	X	X	X	X	V	NA
80	Atmosphere: Art, Science, Politics	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
81	Remote Control: Geographies of Contemporary Warfare	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V	NA
82	Sustainable Urbanism and European Field Trip	X	X	NA	X	X	X	X	X	X	X	X	X	V
83	Geography in the Contemporary World	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V
84	Academic Skills for Geographers and Planners	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V
85	Migration and Cultural Encounters	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V
86	Academic Skills for Geographers and Planners	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V
87	Development of Geographical Thought	NA	V	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V
88	Alternative Economic Geography	X	X	X	X	X	X	X	X	X	X	X	X	V
89	Society and Culture	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V

	in Modern Britain													
90	Twentieth Century Europe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V
91	Placement and Employability Skills	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	V

Appendix 11: Comparison of History modules offered in 6 universities of Rwanda and 3 universities from Africa and USA

No	History modules benchmarking	UR-CE	UR-CASS	EAUR	KP	ICK	MKU	IPB	Wits University, South Africa	University of Ghana	University of Wisconsin at Madison
1	Introduction to History	x	x	NA	X	x	NA	x	NA	x	NA
2	World History I and II	x	x	x	X	x	X	x	X	x	x
3	History of Rwanda (ancient and contemporary)	x	x	x	X	x	X	x	NA	NA	NA
4	History of Africa I and II	x	x	x	X	x	X	x	X	x	x
5	World Revolutions and Wars	x	NA	x	NA	NA	NA	NA	NA	x	x
6	Comparative History of Genocide	x	V	x	X	x	NA	NA	NA	NA	x
7	History Teaching Methods	x	NA	NA	NA	x	X	x	NA	NA	NA
8	History of International	x	x	x	NA	NA	NA	NA	NA	x	x

	Relations										
9	Media and History	NA	x	x	NA	NA	NA	X	NA	NA	NA
10	Issues in Contemporary History	x	x	x	X	x	X	X	X	x	x

Appendix 12: Comparison of Kinyarwanda modules offered in Higher Learning Institutions in Rwanda

No	Module title	UR-CE	ULK	ICK	KP
1	Umusogongero ku rurimi rw'Ikinyarwanda n'iyigandimi	AD	V	NA	X
2	Umusogongero ku buvanganzo nyarwanda	V	V	AD	X
3	Ubugeni bwo kuvuga no kwandika mu Kinyarwanda	V	NA	AD	NA
4	Iyigantego ry'Ikinyarwanda	V	V	X	X
5	Inkuru ngufi n'inkuru ndende mu Kinyarwanda	V	X	NA	NA
6	Iyiganteruro ry'Ikinyarwanda	V	V	X	AD
7	Ikinamico mu myigire n'imyigishirize by'Ikinyarwanda	V	X	NA	NA
8	Ubusizi nyarwanda	V	V	NA	NA
9	Iyigandimi nyamubano mu Rwanda	V	X	NA	NA
10	Iyigandimi nyamateka n'iyigandimi ngereranya by'Ikinyarwanda	V	V	NA	NA
11	Iminozanganzo n'ubuhanzi nyandiko mu Kinyarwanda	V	X	NA	AD
12	Iyiganyito n'imikoreshereze y'ururimi	V	V	NA	NA
13	Iyigamvugo n'iyigamajwi by'Ikinyarwanda	NA	NA	NA	X
14	Ubugeni bwo kwandika Ikinyarwanda	NA	NA	NA	X
15	Iyiganyito ry'Ikinyarwanda	V	X	NA	NA
16	Iyigarutonde, iyigamuga n'iyandikankoranya by'Ikinyarwanda	V	AD	NA	NA

Appendix 13: Comparison of Physics modules offered in Rwanda and beyond

No	Modules	KP	UR-CE	UKZN	Southampton University	WITS University	Makerere University	BALL State University
1	Mechanics	V	V	AD	V	X	V	X
2	Properties of Matter and Thermodynamics	V	V	AD	AD	X	V	X
3	Waves and Optics	NA	V	V	X	V	V	V
4	Mathematical and Computational Physics	NA	V	X	AD	X	X	X
5	Electromagnetism	V	V	X	V	V	V	V
6	Analytical Mechanics and Special Relativity	AD	V	X	X	X	X	X
7	Electrodynamics	X	V	X	X	V	V	V
8	Quantum Mechanics	V	V	X	AD	AD	V	X
9	Electronics	X	V	AD	X	X	V	V
10	Thermal and Statistical Physics	NA	V	V	V	AD	AD	AD
11	Atomic and Nuclear Physics	V	V	X	V	V	V	V
12	Environmental and Space Physics	NA	V	X	X	X	X	X
13	Oscillation and waves	V	V	X	X	X	AD	AD
14	Optics	V	AD	X	X	X	X	X
15	Modern Physics	AD	V	X	AD	X	X	X
17	Statistical Physics	X	X	X	X	X	X	V
16	Introduction to electrodynamics and electronics	X	NA	X	V	X	X	X
18	Chemistry and Physics for Educators II	X	AD	V	X	V	X	X
19	Chemistry and Physics for Educators I	X	AD	V	X	V	X	X
20	Electricity and magnetism	X	X	V	V	V	V	V

Appendix 14: Comparison of Economics modules offered in Rwanda and beyond

No	MODULES BENCHMARK	KP	UR CE	Makerere University
1	Development Economics	V	NA	V
2	Econometrics	V	NA	NA
3	Econometrics I	NA	NA	V
4	Economic Planning and Policy	NA	NA	V
5	Economic Theories and Practices in Education	NA	NA	V
6	Economics of Development	NA	AD	AD
7	Elements of Mathematics	AD	AD	V
8	Elements of Probability and Statistics	AD	AD	V
9	History of Economics Thought	NA	V	V
10	Industrial Economics	NA	NA	V
11	Intermediate Microeconomics	AD	AD	V
12	International Economics	V	V	NA
13	International Trade	NA	V	NA
14	Introduction to Econometrics	V	NA	AD
15	Introduction to Economics	V	NA	V
16	Introduction to Mathematics for Economists	AD	AD	V
17	Introduction to Statistics and Econometrics	NA	V	AD
18	Introductory Econometrics	V	NA	AD
19	Labour Economics	NA	NA	V
20	Macro-Economics	V	NA	V
21	Management Economics	NA	NA	V
22	Mathematics for Economics	AD	V	V
23	Micro-Economics	V	NA	V

24	Money and Banking	V	V	NA
25	Political Economy	NA	NA	V
26	Political Economy & Comparative Systems	V	NA	AD
27	Principles of Development Economics	AD	NA	V
28	Principles of Economics	AD	V	AD
29	Principles of Macroeconmics	V	V	AD
30	Public Economics	V	NA	NA
31	Public Economics and Finance	AD	V	NA
32	Public Finance and taxation	V	AD	NA
33	Public Sector Economics	NA	NA	V
34	Quantitative Methods	V	NA	V
35	Resource Development and Use in Economics Education	NA	NA	V
36	Rwandan Economy	V	NA	NA
37	Specific Methods of Teaching Economics	AD	AD	V
38	Statistics for Economists	V	NA	AD
39	Teaching Methods of Economics and entrepreneurship	AD	V	AD

Appendix 15: Comparison of Entrepreneurship modules offered in Rwanda and beyond

No	MODULES	KP	UR CE	Makerere University
1	Business law	V	V	NA
2	Advanced Entrepreneurship and Innovation	NA	V	NA
3	Auditing	V	NA	NA
4	Business Communication	V	V	NA

5	Cost & Management Accounting	V	V	NA
6	Entrepreneurship Skills	V	V	NA
7	Financial Management	NA	AD	NA
8	Fundamentals of Accounting	V	V	V
9	Information System & E-Business	V	NA	NA
10	Introduction to Management	V	V	NA
11	Management & Marketing of SMEs	v	AD	NA
12	Managing Operation & People	V	NA	NA
	Marketing & Product Promotion	V	NA	NA
13	Marketing and Co-operatives	AD	AD	V
14	Project Planning & Management	V	NA	V
15	Public Finance and taxation	V	AD	NA
16	Public Sector Economics	NA	NA	V
17	Quantitative Methods	V	NA	V
18	Resource Development and Use in Economics Education	NA	NA	V
19	Rwandan Economy	V	NA	NA
20	Specific Methods of Teaching Economics	AD	AD	V
21	Strategic Management	V	NA	NA
22	Strategies and Practices in Teaching	NA	NA	V
23	Tax and Business Law	V	NA	V
24	Teaching Methods of entrepreneurship	AD	V	AD