TANZANIA COMMISSION FOR UNIVERSITIES

Guidelines for Teacher Education Programmes in University Education in Tanzania

December, 2024

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Abbreviations

CBC	Competence-Based Curriculum
ETP	Education and Training Policy
GoT	Government of Tanzania
IST	Immersive Simulated Teaching
MoEST	Ministry of Education, Science and Technology
MoU	Memorandum of Understanding
PTCs	Practical Teaching Cycles
PTT	Practical Teacher Training
TCU	Tanzania Commission for Universities
USPs	University-School Partnerships

Definition of Key Terms

Classroom action research

Classroom action research is a systematic method used by teachers to enhance teaching and learning by identifying problems, planning interventions, and analysing outcomes, promoting continuous professional development and evidence-based decision-making.

Co-teaching

Co-teaching in the context of practical teacher training refers to a collaborative approach where a student teacher and an experienced teacher work together to plan, deliver, and assess instruction in the same classroom. This approach is meant to provide student teachers with hands-on experience while benefiting from the guidance and expertise of a seasoned teacher.

Experienced teacher

In the context of practical teacher training, an experienced teacher refers to a seasoned educator who possesses extensive knowledge and skills gained from several years of teaching. He/she plays a crucial role in mentoring student teachers during practical training.

Flexible programme

A flexible programme is one that allows students to choose courses and learning paths that match their interests and goals. It integrates various instructional methods and offers dynamic scheduling to balance study with other commitments. However, the curriculum remains relevant and effective, enhancing student engagement and success.

Immersive simulated teaching

Immersive simulated teaching is a method that leverages immersive simulations to create realistic, interactive learning environments specifically designed for student teachers. This approach allows them to practice teaching skills, manage classroom scenarios, and experience the challenges of teaching in a controlled, yet lifelike setting.

Mentors

Mentors are experienced secondary school teachers and university-level educators specialized in subject-specific teacher training.

Practical teaching cycles

Practical teaching cycles are iterative processes of teaching designed to enhance student teachers' pedagogical skills through structured reflection and continuous improvement of instructional practice.

Pre-teaching activities

Pre-teaching activities are activities designed to equip student teachers with the essential knowledge, skills, and strategies needed before they begin their hands-on teaching experience.

Programme alignment

Programme alignment is the process of aligning a programme's goals, curriculum, instructional methods, and assessments with established standards or benchmarks. It ensures that the content and methods meet specific educational or professional criteria, ensuring students achieve competencies and skills expected by the standards, leading to a more effective educational experience.

Teacher educator

A teacher educator is a professional who prepares future teachers by teaching pedagogy, curriculum development, educational psychology, and classroom management. They supervise student teachers, conduct research, and advocate for effective teaching practices, equipping them with the necessary skills.

Teacher education programme

A teacher education programme is a programme that prepares individuals to become classroom teachers in a school system

University-School Partnership

University-school partnership refers to a collaborative relationship between universities and schools aimed at improving educational outcomes and enhancing teacher preparation. These partnerships involve mutual support and shared goals between institutions of higher education and local schools.

PART ONE

PRELIMINARIES

1.1 Introduction

The Government of Tanzania (GoT), through the Ministry of Education, Science and Technology (MoEST), has reviewed the 2014 Education and Training Policy (ETP) (2023 Edition) and the curricula for basic education (pre-primary, primary, and secondary) and teacher education. The revised policy and curricula are designed to ensure that students acquire foundational knowledge and practical skills and competencies that are essential for success in today's rapidly changing job market, characterised by continuous technological advancements, shifting economic trends, and evolving regional and global demands. By aligning educational outcomes with these dynamic market needs, the updated ETP and curricula aim to enhance the employability and adaptability of graduates, thereby contributing to their ability to thrive in both local and international contexts.

1.2 Implementation of the Revised Teacher Education Curriculum in Universities

Universities are essential drivers of knowledge creation and dissemination, excelling in their core functions of teaching, research, and community engagement. With the recent revisions to the policy and curricula, universities are central to the effective implementation of the revised educational frameworks. As the primary institutions responsible for training future educators, universities are tasked with preparing teachers to deliver the updated curriculum effectively. This necessitates a concurrent update and development of the curricula for teacher education programmes. By revising and enhancing these teacher education curricula, universities ensure that they are in alignment with the revised 2014 ETP (2023 Edition) and the revised basic and teacher education curricula. This alignment is crucial for equipping student teachers with the knowledge and skills needed to meet the new educational standards and to foster a learning environment that prepares students to excel in a rapidly evolving global and regional job market.

1.3 Purpose of the Guidelines

Universities are primarily tasked with ensuring educational quality and adhering to regulatory frameworks, including the Universities Act (Cap. 346), the Universities (General) Regulations (G.N. No. 226 of 2013), the Standards and Guidelines for University Education in Tanzania (2019), and any supplementary directives from the Commission.

The Guidelines aim to support universities in implementing harmonised procedures for teacher education programme development or review to ensure consistent outcomes that align with stakeholder expectations. It will assist in aligning teacher education curricula with the reviewed standards. It offers guidance on harmonising various aspects of curriculum development, review, and delivery to support the effective implementation of the updated curricula at lower and upper secondary school levels.

The Guidelines include prototypes, which serve as general frameworks, not as curricula, since the development of curricula is the mandate of the university.

PART TWO

STRUCTURE OF TEACHER EDUCATION PROGRAMMES

2.1 Overview of the Structure

The bachelor's degree programmes in teacher education are designed to span three years and cater to prospective student teachers with Advanced Certificate for Secondary School Education and diploma from recognised education institutions. In line with the objectives of teacher education, these programmes will consist of academic subjects and education courses. Student teachers can select elective courses from other programmes to explore areas of interest beyond the core academic and pedagogical content. The structure of the teacher education programme is diagrammatically presented in Figure 1.

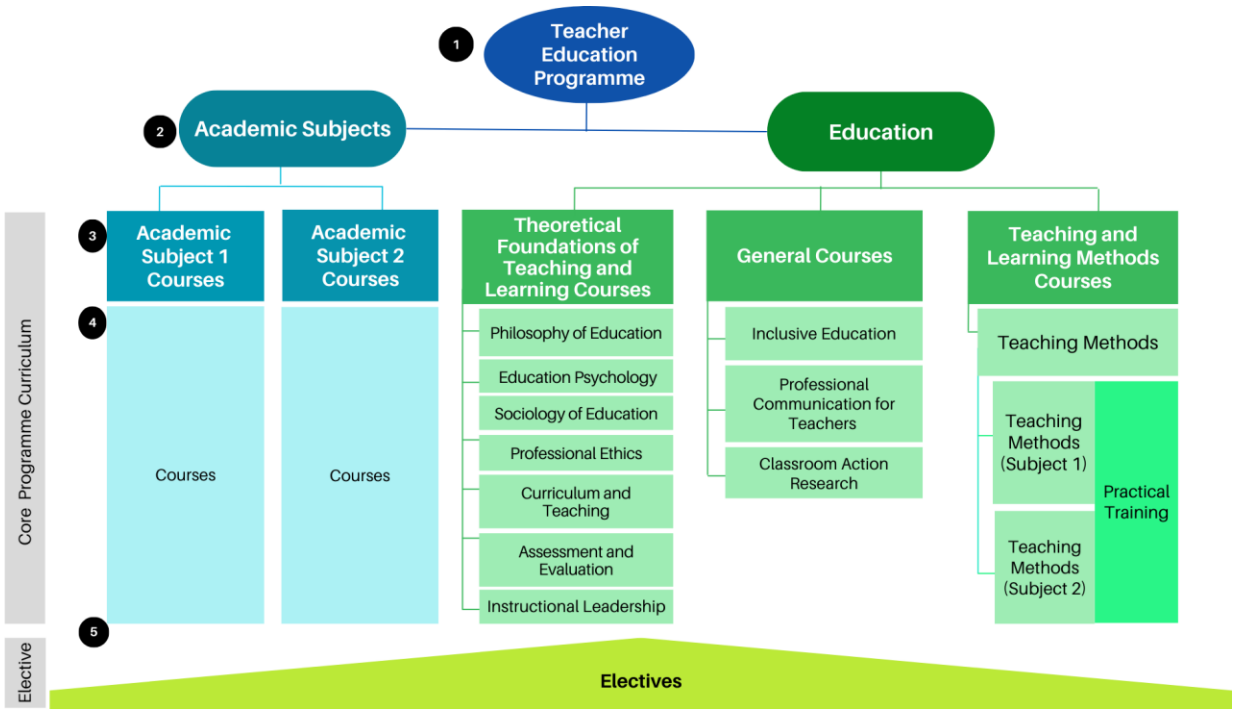

Figure 1. Structure of teacher education programme

2.2 Academic Subject Courses

The academic subject courses constitute 60% of the total weight of the programme and focus on courses of the two teaching subjects that student teachers will teach in secondary schools, whereby each subject will contribute 30%. It forms the cornerstone of academic training, providing in-depth knowledge and expertise crucial for effective teaching. By immersing student teachers in these core subjects, the programme ensures they develop a comprehensive understanding and acquire the essential skills required to excel in their teaching roles and meet the anticipated educational standards.

2.3 Education Courses

Education courses constitute 40% of the weight of the programme and encompasses courses in teacher professionalism, general subjects, and teaching methodologies. It includes three key components:

a) **Theoretical Foundations of Teaching and Learning courses**: These include courses such as educational philosophy, educational psychology, professional ethics, assessment and evaluation, and curriculum analysis. This component will constitute 15% of 40%.

b) **General Courses:** These include courses related to professional communication for teachers, classroom research and inclusive education. These courses will constitute 5% of 40%.

c) **Teaching and Learning Methods courses**: These include both subject-specific teaching methods and practical teaching experience courses, providing a comprehensive approach to developing effective instructional skills among student teachers. This component constitutes 20% of 40%. Teaching methods courses for each subject shall carry 10%.

Generally, the preparation of teacher education programmes should focus on building the student teacher's competence in the following basic areas: mastery of the subject content, teaching and learning management, teaching methods (didactics), and assessment methods to evaluate achievements and identify areas that require improvement in teaching and learning. The structure ensures a balanced approach, integrating specialised subject knowledge with essential educational training, which enhances the teaching capabilities of specialised subjects at specific levels of education.

2.4 Elective Courses

University institutions shall integrate electives into the teacher education curriculum to provide flexibility to student teachers, allowing them to explore interests beyond core subjects. Student teachers may have opportunities to opt for courses from academic subjects and/or education based on their capacity, personal goals and university capacity. Electives shall support *specialization*, *further skill development, and interdisciplinary learning,* enhancing future educators' ability to tackle diverse educational challenges and opportunities. Key considerations for Integrating electives into the teacher education curriculum:

a) Design the curriculum to include a range of elective courses that allow student teachers to explore areas beyond the core academic and pedagogical subjects.

b) Ensure that electives are diverse and accessible, allowing students to select courses from within and outside their programmes to help them align their education with their personal aspirations and professional objectives.

c) Offer electives that support the development of additional skills, including options that encourage interdisciplinary learning to enhance the skills of student teachers in areas such as financial literacy, leadership, and stress management, among others

PART THREE

KEY ELEMENTS OF TEACHER EDUCATION PROGRAMMES

3.1 Philosophy of Teacher Education Programmes

The philosophy of teacher education programmes is foundational in shaping effective teachers. It reflects the broader philosophy of education in Tanzania, which emphasises education for self-reliance as outlined in the ETP 2014 (2023 Edition). It encapsulates the core values and aspirations of Tanzanians, promoting effective teaching and meaningful student engagement. A central tenet of this philosophy is the principle of self-reliance, encouraging individuals and communities to harness their own capabilities for sustainable development. This comprehensive approach nurtures a generation of teachers who embody self-reliance but also inspire their students to become proactive contributors to their communities and nation. Universities are expected to ensure that:

a) The philosophy of teacher education programmes reflects the broader philosophy of education in Tanzania

b) The programmes prepare teachers who are not only well-educated and equipped with knowledge and skills but also possess positive attitudes, value equality and human rights, commit to lifelong learning and contribute to sustainable development.

c) The programmes provide student teachers with a robust academic foundation and practical skills, including incorporating modern teaching methodologies, technological proficiency, and assessment strategies.

3.2 Objectives of Teacher Education Programmes

The teacher education programmes shall be designed to prepare a competent teacher who can embrace teaching and learning that correspond with the scientific, technological, and social changes for the purpose of preparing a Tanzanian citizen who is well equipped with knowledge, skills, and positive attitudes, and who respects human rights, equality, and lifelong learning. This objective is also stipulated in the Basic and Teacher Education Curriculum Reform Committee (2023). Specifically, teacher education programmes shall reflect the following objectives:

a) Develop comprehensive knowledge and expertise in the academic subjects to teach effectively and support student success.

b) Gain a deep theoretical grasp of teacher education, professional ethics, and teaching foundations.

c) Develop expertise in a variety of effective instructional techniques.

d) Develop competence in implementing and utilising assessment and evaluation methods that support competency-based education.

e) Apply creative and innovative approaches to meet diverse student needs.

f) Use ICT and assistive technologies to enhance teaching and learning.

g) Develop skills for early detection and intervention for students with special needs.

h) Strengthen the use of language to support teaching and learning outcomes.

i) Acquire skills to conduct research aimed at improving teaching, learning, and assessment.

3.3 Programme Expected Learning Outcomes

In designing or reviewing teacher education programmes, universities must clearly define the programme's learning outcomes in alignment with the objectives of teacher education. These outcomes should specify what student teachers are expected to know, demonstrate, and value in the context of implementing a competency-based curriculum in schools. The focus should be on ensuring that student teachers are well-prepared to effectively apply their knowledge, skills, and values in their teaching practices. Key considerations in developing the programme's learning outcomes include:

a) Align programme learning outcomes with the objectives of teacher education programmes by clearly outlining what students should know (knowledge), be able to do (skills), and value (attitudes) upon completion of the programme. This is meant to ensure a holistic and comprehensive development of student teachers, integrating theoretical understanding, practical abilities, and professional dispositions to be exhibited by teachers.

b) Formulate programme learning outcomes in a specific, measurable, achievable and realistic manner

c) Concisely articulate programme learning outcomes that are learner-centered by focusing on students' active engagement, critical thinking, and personal growth. Ensure outcomes emphasize the development of practical skills, application of knowledge, and fostering of a supportive learning environment tailored to individual needs and interests.

d) Outline the programme expected learning outcomes by reflecting on the following key components:

   i) Content and pedagogy expertise

   ii) Classroom management

   iii) Effective instructional strategies

   iv) Professionalism and ethical conduct

   v) Technological integration

   vi) Classroom research and application

   vii) Inclusive teaching practices

viii) Professional communication

e) Design and offer courses for the teacher education programme that are aligned with the programme learning outcomes.

3.4 Learning Areas

Teacher education programmes shall cover a wide range of essential learning areas to ensure that student teachers are well-equipped to excel in their teaching roles. Thus, the curriculum for the programmes shall integrate the following learning areas as provided in Table 1:

Table 1. Learning Areas for Teacher Education Programme

Learning Areas	Courses[1]	Nature of Courses	Course Weighting
Academic subjects	Subject 1	Core content courses	30%
	Subject 2	Core content courses	30%
Theoretical Foundations of Teaching and Learning	Teaching Philosophy and Ethics	Courses on educational philosophies and ethical principles guiding the teaching profession.	15%
	Curriculum and Teaching	Courses on curriculum analysis and effective teaching and learning.	
	Psychology and Sociology of Education	Courses on psychological and sociological theories and their implications for teaching and learning.	
	Assessment and Evaluation	Courses on methods and tools for assessing student learning and evaluating educational outcomes.	
	Instructional Leadership	A course focusing on supervision of the instructional program, impact on school improvement, and differentiated instruction.	
General Subjects	Inclusive Education	A course focusing on approaches and practices for creating an inclusive learning environment that accommodates diverse learners.	5%
	Professional Communication for Teachers	A course focusing on development of skills for effective academic and professional communication with students and other education stakeholders.	
	Classroom Action Research	A course focusing on development of skills for conducting classroom research to improve teaching practice.	
Teaching and Learning	Teaching and Learning Methods of	Courses focusing on teaching methods and techniques for learning of specific teaching subjects.	20%

[1]The number of academic subject courses will be aligned with the total credit requirements as specified by the UQF, in relation to the required education courses.

Methods	a specific subject	Practically, it focuses on residential and school-based practical teacher training.	
Total			100%

Table 2. Course Mapping for Bachelor of Teacher Education Programme

	Course 1*	Course 2*	Course 3	Course 4	Course 5	Course 6	Course 7[2]
Semester 1	Subject 1 Course 1	Subject 1 Course 2	Subject 2 Course 1	Subject 2 Course 2	Philosophy of Education	Educational Psychology	Elective
Semester 2	Subject 1 Course3	Subject 1 Course 4	Subject 2 Course 3	Subject 2 Course 4	Inclusive Education	Sociology of Education	Elective
Semester 3	Subject 1 Course 5	Subject 1 Course 6	Subject 2 Course 5	Curriculum and Teaching	Professional Communication for Teachers	Assessment and Evaluation	Elective
Semester 4	Subject 1 Course 7	Subject 2 Course 6	Subject 2 Course 7	Instructional Leadership	Professionalism and Ethics	Classroom Research	Elective
Semester 5	Subject 1 Course 8	Subject 1 Course 9	Subject 2 Course 8	Subject 2 Course 9	Teaching Methods 1-1**	Teaching Methods 2-1**	Elective
Semester 6	Subject 1 Course 10	Subject 1 Course11	Subject 2 Course 10	Subject 2 Course 11	Teaching Methods 1-2***	Teaching Methods 2-2***	Elective
	Internship						

Academic subject courses | Education Courses | Elective courses

[2] Elective courses will be available for student teachers to choose from, with at least one course offered each semester, depending on the relevant factors.

* Contents of courses for Subject 1 and 2 shall reflect the lower and upper secondary school syllabi content.

** Residential practical training encompasses pre-training preparation and immersive simulated teaching.

*** Non-residential practical training cycles including observation and co-teaching; lesson planning and implementation; and lesson planning and independent teaching.

3.5 Teaching and Learning Methods

Teaching and learning methods shall be learner-centered, designed to engage student teachers in the process of developing knowledge, skills and attitude for effective implementation of the reviewed secondary education curricula. Key considerations in selecting teaching and learning methods include:

a) Align teaching and learning methods with the programme's learning outcomes by ensuring that instructional strategies are carefully matched with the desired competencies and objectives.

b) Incorporate learner-centered teaching and learning methods by adopting approaches that prioritise the needs, interests, and active participation of student teachers, fostering student engagement and promote collaborative learning

c) Incorporate teaching and learning strategies that promote 21st-century skills, such as critical thinking, problem-solving, communication, collaboration, creativity, digital literacy, ethics, and patriotism.

d) Incorporate innovative teaching and learning approaches, including design thinking, gamification, project-based learning, flipped classroom, inquiry-based learning, experiential learning, cooperative learning, case study and problem-based learning, micro-learning, etc.

e) Include teaching and learning methods that are inclusive, actively promoting the engagement of all student teachers regardless of gender, needs, backgrounds, or abilities. These methods should accommodate diverse perspectives and learning styles, fostering an equitable and supportive environment where every student teacher can participate fully and achieve their potential.

f) Integrate technology into teaching and learning to provide student teachers with the experience and skills needed to utilize technology effectively in the instructional process to meet the demands of 21st-century education.

g) Tailor teaching and learning methods for large classes by employing a range of strategies designed to enhance student engagement and improve learning outcomes. This includes utilizing interactive techniques, such as group work and collaborative projects to facilitate active participation, and implementing diverse instructional approaches to address varying learning styles and needs.

3.6 Programme Assessment Strategy

When designing or reviewing teacher education programs, universities must develop a robust assessment strategy to measure the achievement of programme objectives and learning outcomes in accordance with the professional standards outlined in the 2014 ETP (2023 Edition). In aligning these methods with the professional standards, universities can ensure that their programs effectively support student teachers in becoming skilled and competent educators. To effectively evaluate and enhance the learning experience in teacher education programmes, universities must consider the following key guidelines:

a) Align assessment methods with the specific objectives and learning outcomes of the teacher education programme, involving matching the level, type, and complexity of skills and knowledge assessed with the intended learning goals of the programme.

   Incorporate a variety of assessment methods, including:

   i) formative assessments for ongoing feedback,

   ii) summative assessments for overall evaluation,

   iii) practical assessments of teaching skills, and

   iv) peer- and self-assessments to encourage reflective practice.

b) Integrate innovative assessment methods for both theoretical and practical aspects of the programme. This includes:

   i) **Observations:** Regular and systematic observations of practical teaching to assess practical skills.

   ii) **Projects:** Assessments that require application of knowledge in real-world contexts.

   iii) **Portfolios:** Comprehensive collections of student work demonstrating growth and achievements.

   iv) **Self- and peer assessments:** Opportunities for students to evaluate their own and each other's work to encourage reflective practice, ownership, responsibility, and autonomy over their learning process.

   v) **Performance-based assessments:** Assessments to evaluate students' ability to perform tasks or demonstrate skills in a realistic context.

   vi) **Examinations**: Assessments to evaluate theoretical understanding and knowledge.

c) Incorporate technology and digital tools into assessment design and implementation where appropriate. This may include online assessments, digital portfolios, and other technology-enhanced methods to support learning and assessments.

d) Incorporate authentic data collection and analysis procedures aligned with programme assessment methods to provide information to inform programme development and review.

These guidelines help universities ensure that their assessment strategies are innovative, aligned with programme objectives, and supportive of student development throughout their teacher education journey.

3.7 Practical Teacher Training (PTT)

PTT shall be a fundamental component of all teacher education programmes. It will emphasise continuous professional development by integrating university-based instructions with practical experiences in nearby schools and teacher colleges. The training shall have three integral components to ensure a comprehensive and effective learning

experience. The components include pre-teaching activities, immersive simulated teaching, and practical teaching cycles within nearby schools (see Annex 1). The first two components shall take place in a residential setting where student teachers engage in foundational activities and practice teaching in controlled, simulated classroom scenarios. The final component shall be conducted in nearby schools. These components are integrated in respective teaching methods courses (refer Table 1). This approach will ensure that student teachers effectively apply their theoretical knowledge and refine their teaching skills to enhance their overall teaching competence. Key considerations regarding PTT include:

a) Design or review teacher education programmes to include pre-teaching activities, immersive simulated teaching under the guidance of university teacher educator, and practical teaching cycles in nearby schools, co-supervised by experienced secondary school teacher and university subject teacher educator.

b) Develop guidelines for the implementation and monitoring of pre-teaching activities, immersive in-class simulated teaching, and practical teaching cycles. These guidelines should focus on effectiveness parameters such as student teachers' participation in teaching and learning activities, mentoring sessions, preparation of instructional artefacts including lesson plans and assignments, and conducting self-reflection. The efficiency parameters may include time management in teaching and learning, personalised learning, and promotion of interactions in the classroom. These parameters help to achieve learning objectives with minimal time, effort and resources.

c) Establish partnerships with nearby secondary school authorities to facilitate meaningful field experiences that reflect real classroom environments and allow for diverse student interactions.

d) Establish innovative retooling sessions for academic staff to enhance the effectiveness and efficiency of mentoring and supervising student teachers during pre-teaching activities, immersive in-class simulated teaching, and practical teaching cycles.

e) Assign supervisors/mentors who are teacher educators capable of nurturing teaching etiquette in student teachers.

f) Devise practical and authentic assessment guidelines for evaluating pre-teaching activities, immersive in-class simulated teaching, and practical teaching cycles.

PART FOUR

NATURE OF COURSES FOR TEACHER EDUCATION PROGRAMMES

4.1 Design of Courses

The courses shall be designed to foster a comprehensive understanding and mastery of essential teaching competencies, preparing teachers to successfully implement a competence-based curriculum of secondary schools to enhance student learning experiences and outcomes. They shall be aligned with the objectives and learning outcomes of the programme as follows.

a) Align the courses with scientific, technological, and social advancements to equip Tanzanians with essential knowledge, skills, and positive attitudes, while promoting values of equality, rights, and lifelong learning.

b) Consider the following categories of courses:

i) **Subject-specific courses:** Courses for deepening student teachers' understanding of both foundational and advanced subject matter, ensuring proficiency in their respective disciplines.

ii) **Theoretical foundations of teaching and learning courses:** Courses for offering a robust theoretical grounding, these courses cover historical, philosophical, sociological and educational psychological perspectives that have shaped the teaching and learning process. s. They shall also focus on assessment and evaluation and classroom management skills to foster conducive learning environments and facilitate student competence development.

iii) **Teaching methods courses:** Courses for providing student teachers with the opportunity to apply theoretical knowledge in real classroom settings, receive feedback from mentors, and build teaching confidence

iv) **Inclusion course:** Course for developing student teachers' skills for creating an inclusive classroom environment where all students, regardless of their background or abilities, feel valued and respected.

v) **Classroom research course:** Course for equipping student teachers with skills for investigating their teaching practices and classroom environments. They shall be designed to support reflective practice and the use of research to enhance teaching and student outcomes.

vi) **Teacher professional communication course:** A course for strengthening communication skills, enabling student teachers to build positive relationships with students, colleagues, and parents, and to effectively communicate in diverse educational contexts.

4.2 Course Aim

The aim of a course shall be articulated in each course to effectively guide both teaching and learning processes. Key considerations in formulating course aims include:

a) Align course aim with programme objectives and expected learning outcomes.

b) Articulate the course aim using clear, straightforward language that is easily understandable by students.

c) Outline a course aims to include what students will learn, know, be able to do, value and behave by the end of the course.

d) Frame the course aim in a specific manner to provide a focused direction for the course, allowing for measurable outcomes through assessments and evaluations.

4.3 Course Expected Learning Outcomes

Course expected learning outcomes shall be systematically articulated to effectively guide students toward achieving the skills and knowledge necessary for successful teaching careers. Key considerations in formulating course expected learning outcomes include:

a) Precisely and clearly indicate what student teachers are expected to know, do, or value by the end of the course. Example: Instead of "Student teachers will understand teaching methods," use *"Student teachers will be able to design lesson plans using differentiated instruction strategies."*

b) Frame learning outcomes in a way that allows for assessment through specific, observable, and measurable criteria. Example: *"Student teachers will be able to conduct a formative assessment and analyse the results to adjust instructional strategies."*

c) Align learning outcomes with the aims of the course and the theoretical and practical needs of student teachers.

d) Outline realistic and attainable learning outcomes within the scope and duration of the course. Example: *"Student teachers will complete a project on developing classroom management plans."*

e) Write the learning outcomes in clear, straightforward language that is easily understandable by students and instructors. Example: *"Student teachers will analyse case studies to identify effective strategies for student engagement."*

f) Ensure that learning outcomes focus on the end results of learning rather than the activities or processes used to achieve them. Example: *"Student teachers will be able to reflect on their teaching practices to improve student outcomes."*

g) Align learning outcomes with relevant educational standards and professional competencies for teachers. Example: *"Student teachers will apply principles of effective communication to build positive relationships with students and parents."*

h) Ensure that learning outcomes reflect the pedagogical methods used in the course and that students can apply these methods in practice. Example: *"Student teachers*

will design and facilitate a collaborative learning activity that fosters critical thinking and problem-solving."

i) Design learning outcomes that encourage student teachers to engage in higher-order thinking, such as analysis, synthesis, and evaluation, rather than just recall of information. Example: "*Student teachers will evaluate and critique various assessment tools to determine their effectiveness in measuring student learning outcomes."*

4.4 Course Content

When designing course content with a focus on competence development, the aim is to ensure that students not only acquire theoretical knowledge but also develop practical skills and competencies that are directly applicable in their field of study or future careers. Key considerations in designing course content include:

a) Ensure that every component of the course content directly supports the defined course learning outcomes to guarantee that the content is relevant and focused on what students need to learn to realize course learning outcomes.

b) Arrange modules or units in a logical, progressive and developmental sequence that builds on prior knowledge. Start with fundamental concepts and progress to more complex ideas.

c) Divide content into clear, manageable modules or units, each dedicated to supporting the development of specific skills, making it easier for students to develop anticipated competences.

d) Integrate examples and scenarios that reflect real-world applications of the concepts being taught for student teachers to see the practical value of what they are learning.

e) Design content that accommodates various learning styles and needs by incorporating multimedia and alternative formats to ensure inclusivity, exploration, inquiry, and collaboration.

f) Ensure that the content reflects diverse cultural perspectives and is sensitive to different backgrounds.

g) Consider integrating technology-related content to enhance learning experiences, providing opportunities for student teachers to develop digital literacy skills, incorporating relevant digital tools and resources to support their educational growth.

h) Align the course content with assessment methods that effectively measure students' academic progress and the competencies they develop throughout the programme.

4.5 Teaching and Learning Activities

Teaching and learning activities shall promote the development of specific competencies within a course. The activities shall put student teachers at the centre of teaching and learning, with emphasis on, the practical application of skills and knowledge, thereby preparing student teachers to effectively implement the competence-based curriculum. Key considerations in designing teaching and learning activities include:

a) Design activities that directly support the course's learning outcomes, connected to knowledge, skills and attitudes/values students are expected to demonstrate.

b) Design activities that actively engage students by incorporating group discussions, debates, hands-on projects, and other interactive elements, encouraging deeper engagement and understanding through exploration, questioning, and investigation, problem-solving, etc.

c) Utilize a range of teaching and learning activities to reflect different learning styles, including visual, auditory, and kinaesthetic approaches, including lectures, multimedia presentations, case studies, collaborative projects, and role-playing, etc.

d) Incorporate collaborative activities that promote teamwork and communication skills, including group projects, peer reviews, and collaborative problem-solving tasks to foster cooperation.

e) Design activities that help students develop digital literacy skills, including using software, creating digital presentations, and engaging in online research.

f) Provide opportunities for hands-on experiences where students can apply their knowledge in practical contexts, such as lab experiments, service learning, or industry projects.

g) Design activities that include formative assessments, allowing for ongoing feedback and adjustment to help students understand their progress and areas for improvement throughout the course.

h) Ensure that activities are inclusive and accessible to all students, including those with disabilities, by providing alternative formats and accommodations as necessary.

i) Design activities tailored to enhance student teachers' learning in large class settings.

4.6 Assessment Methods

When formulating assessment methods for a competence-based curriculum, it is crucial to ensure that assessments accurately measure and support the development of competencies. Key considerations in designing competency-based assessments include:

a) Align each assessment method with specific competencies to reflect the intended learning outcomes and goals of the competence-based curriculum. This is to ensure assessments accurately measure the competencies they are intended to evaluate.

b) Design assessments that produce consistent and dependable results across different contexts and over time.

c) Use assessment methods that simulate real-world tasks and scenarios to ensure that students can apply competencies in practical situations. This will ensure assessments reflect the contexts and environments where competencies will be used in practice.

d) Incorporate a range of assessment methods, such as practical tasks, projects, simulations, and self-assessments, to cover different aspects of competencies.

e) Design assessments that cater for various learning styles and abilities to ensure a comprehensive evaluation.

f) Develop assessment rubrics and checklists for evaluating competencies, so student teachers understand what is expected and how they will be assessed.

g) Align assessments with educational standards, policies, and regulations, including those related to fairness and accessibility.

h) Design assessments that are engaging and relevant to maintain student motivation and interest in developing intended competencies.

ANNEXES

Annex 1. Prototype of Bachelor of Science with Education Programme

1. Philosophy

The Bachelor of Science with Education programme is embedded in the belief that effective teaching transforms lives. It is designed to equip student teachers with the necessary skills, knowledge and disposition needed to teach mathematics and physics effectively at both lower and upper secondary levels. It nurtures critical thinking, creativity, and commitment to lifelong learning to ensure that student teachers are not just passive recipients of knowledge but active contributors to their own growth and that of their students. The philosophical foundation of this programme reflects a deep commitment to adapting teaching methods to meet diverse learning needs and fostering an inclusive classroom environment. The programme aims to develop passionate mathematics and physics teachers who will not only drive academic success but also cultivate responsible, self-reliant citizens.

2. Programme Objectives

The Bachelor of Science with Education programme is designed to develop skilled educators who can adapt to scientific, technological, and social changes, preparing professionals with the knowledge, skills, and positive attitudes essential for upholding human rights, equality, and lifelong learning. The specific objective of the programme is to enable student teachers to:

a) Develop comprehensive knowledge and expertise in the academic subjects to teach effectively and support student success.

b) Gain a deep theoretical grasp of teacher education, professional ethics, and teaching foundations.

c) Develop expertise in a variety of effective instructional techniques.

d) Develop competence in implementing and utilizing assessment and evaluation methods that support competency-based education.

e) Apply creative and innovative approaches to meet diverse student needs.

f) Use ICT and assistive technologies to enhance teaching and learning physics and mathematics.

g) Develop skills for early detection and intervention for students with special needs.

h) Strengthen the use of language to support teaching and learning outcomes.

i) Acquire skills to conduct research aimed at improving teaching, learning, and assessment of physics and mathematics.

j) Meet certification requirements to teach mathematics and physics effectively in secondary education

These objectives collectively aim to produce competent, reflective, and adaptable student teachers who can positively impact their students' educational journeys.

3. Programme Expected Learning Outcomes

On successful completion, the student-teacher will demonstrate ability to:

a) Integrate an in-depth, broad and coherent knowledge of subjects' content, educational theory and practice relevant to secondary school teaching.

b) Apply content knowledge in physics and mathematics to design learning activities that reflect best practices and meet the curriculum of secondary school, assessment and reporting requirements.

c) Create learning environments where all students feel valued and supported.

d) Use instructional strategies effectively to cater for diverse learners' needs.

e) Assess, provide feedback, and report on student learning progress.

f) Apply practical strategies for establishing rapport with students to guide their behaviours

g) Demonstrate ethical, integrity, professionalism and commitment to equity and inclusion, reflective practice, and collaboration.

h) Integrate technology into their teaching of physics and mathematics to enhance learners' understanding and experiences

i) Use a range of modes and forms of communication appropriate to the audience within educational contexts.

j) Carry out classroom research and apply findings to inform and improve teaching and learning of physics and mathematics.

4. Teaching and Learning Methods in the Bachelor of Science with Education

The Bachelor of Science with Education programme specializing in Physics and Mathematics utilizes a diverse range of teaching and learning methods to actively engage students while accommodating learners with diverse needs. The methods are meant to foster development and application of 21st century skills including critical thinking, problem-solving abilities, and a deep understanding of the subjects. The following are methods to be used in the delivery of the programme:

a) Project-based learning to engage student teachers in real-world projects that require critical thinking and problem-solving skills.

b) Games to make learning more engaging and motivating.

c) Inquiry-based learning to encourage student teachers to ask questions, conduct investigations, and discover answers through guided exploration.

d) Collaborative learning to facilitate group work and peer-to-peer interaction to enhance learning through shared experiences and collective problem-solving.

e) Virtual simulations, interactive software, and educational apps to enhance understanding and engagement.

f) Differentiated instructions to meet the diverse needs and learning styles of student teachers.

g) Reflective practice to encourage student teachers to regularly reflect on their learning experiences and teaching practices to foster continuous improvement.

By integrating technology, utilizing active learning strategies, and differentiating instruction, student teachers can create an enriching learning environment that prepares student teachers for success in these subjects.

5. The Assessment Strategies in Bachelor of Science with Education

The programme is designed to ensure that student teachers acquire the necessary knowledge, skills, and competencies required for effective teaching of mathematics and physics in secondary schools. The assessment methods are aligned with the programme's learning outcomes and educational standards of Bachelor of Teacher Education. The following are assessment methods to be used in this programme:

a) Formative assessments including quizzes and tests, assignments, peer reviews etc to provide student teachers with timely feedback during the learning process.

b) Summative assessment, include mid-semester and university examinations and a project that integrates knowledge from both physics and mathematics, demonstrating mastery of content.

c) Practical assessments, including laboratory and field works including teaching practices to assess student teachers' ability to follow procedures, analyse data and draw conclusions.

d) Self and peer assessment to enhance student teachers' engagement but also cultivates essential skills such as critical thinking, collaboration, and self-regulation.

6. Nature of Courses for Bachelor of Science with Education Programme

Courses in this programme are designed to prepare professional and competent secondary school teachers. The courses are consistent with scientific, technological, and social advancements to equip Tanzanians with essential knowledge, skills, and positive attitudes, while promoting values of equality, rights, and lifelong learning. The courses are meant to foster a comprehensive understanding and mastery of essential teaching competencies, preparing teachers to successfully implement competence-based curricula to enhance student learning experiences and outcomes. The courses are categorized in two components, *academic subject courses (60%)* and *education courses (40%).* However, student teachers may opt elective courses based on their preference, needs and interests.

The composition of courses in the bachelor of Science in Secondary Education (Mathematics and Physics subjects) are as follows:

6.1 Subject-Specific Courses (60% of all courses in the programme)

These courses are designed to deepen student teachers' understanding of both foundational and advanced mathematics and physics subject matter to ensure their proficiency in their disciplines. The nature and amount of content in the two subjects reflect the respective subjects' syllabi at lower and upper secondary schools. Therefore, the development of academic teaching courses shall follow the spiral curriculum design. By doing this, the prospective teachers shall develop requisite knowledge, skills and attitudes to teach the subjects at secondary schools effectively.

6.1.1 Mathematics Courses (30%)

Mathematics courses shall aim to prepare students teacher who can effectively teach the following topics as indicated in lower and upper secondary mathematics curriculum:

a) Arithmetic and number theory
b) Financial mathematics
c) Algebra
d) Calculus
e) Geometry and functions
f) Set theory
g) Coordinate Geometry, Trigonometry, vectors
h) Statistics
i) Mathematics logic
j) Probability theory
k) Research project in Mathematics

6.1.2 Physics Courses (30%)

Physics courses shall aim to prepare students teacher who can effectively teach the following topics as indicated in lower and upper secondary physics curriculum:

a) Basic and advanced concepts, theories and principles in Physics
b) Basic terminologies, measurements and symbols in Physics
c) Basic and advanced instruments to carry out measurements in Physics
d) Basic and advanced use of mathematical knowledge to describe various relationships, principles and physical phenomena in Physics
e) Basic and advanced experimental skills in Physics (linear motion, density, force, pressure, work, energy, power and mechanical properties of matter)
f) instruments to carry out measurements in Physics
g) techniques and instruments in physical measurements (mechanics, vibrations and waves, thermal properties of materials and electrostatics
h) Conduct experiments in physics related to different, principles and phenomena

i) Design and conduct a project in Physics (setting the experiment/problem, Data collection, data analysis, presentation and report writing).

6.2 Theoretical Foundations of Teaching and Learning Courses

These courses offer a robust theoretical grounding for effective teaching. These courses cover historical, philosophical, sociological and educational psychological perspectives that have shaped the teaching and learning process. They focus on classroom management skills to foster conducive learning environments and facilitate student competence development. Courses to be provided to the students' teachers with the aim of developing theoretical understanding of teacher education, ethics of the teaching profession, life ethics and teaching foundations include: Philosophy of Education, Psychology of Education, Sociology of Education, Professional Ethics, Curriculum and Teaching, Instructional Leadership, and Assessment and Evaluation.

6.3 Teaching Methods Courses

The courses shall be practical in nature, designed to engage student teachers in the process of developing capacity to effectively implement competence-based curriculum. They shall involve in-class learning, simulated teaching, and practical teaching cycles in schools. The programme (Mathematics and Physics) shall have two teaching methods courses namely Mathematics Teaching Methods and Physics Teaching Methods.

6.3.1 Mathematics Teaching Methods Courses

There should be two courses for Mathematics Teaching methods (Mathematics Teaching Methods 1 & 2). These courses shall involve pre-teaching activities, immersive simulated teaching, and practical teaching cycles.

6.3.1.1 Mathematics Teaching Methods Course 1

The Mathematics Teaching Methods Course 1 shall comprise two phases namely pre-teaching activities and immersive simulated teaching.

Pre-teaching activities

The pre-teaching activities phase shall focus on helping student teachers to:

a) Attend lectures on subject-related teaching methods

b) Analyse mathematics syllabus for secondary schools (lower and upper).

c) Analyse the teaching and learning methods for secondary school mathematics

d) Articulate the role of secondary mathematics in different aspects including student's numeracy capabilities, digital literacy etc.

e) Identify and use resources that are culturally appropriate and inclusive for teaching and learning secondary mathematics.

f) Improvise and apply technology and other assistive devices in teaching and learning secondary school mathematics.

g) Design teaching and learning activities to cater for a diversity of learners' needs and abilities.

h) Identify and design a range of classroom assessment methods and tools including rubrics and provide feedback to students on achievement of learning outcomes in mathematics.

i) Take part in communication skills workshops that focus on effective verbal and written communication techniques, including practice sessions for delivering clear and engaging presentations and instructional content.

j) Engage in role-playing exercises that model classroom management scenarios, practicing techniques for maintaining order and fostering a positive learning environment.

k) Observe exemplary virtual lessons and practices.

l) Engage in reflective exercises.

Immersive Simulated Teaching

The Immersive Simulated Teaching phase shall focus on helping student teachers to:

a) Create and deliver lesson plans in a simulated classroom setting, using simulated classroom materials and scenarios.

b) Design lesson plans for simulations, specifying competences, learning outcomes, instructional materials, and assessment methods aligned with real-world standards.

c) Implement the lesson plans alongside peer student teachers but could also use virtual classrooms to replicate realistic teaching conditions.

d) Participate in exercises that mimic various classroom situations, such as handling diverse student needs or managing classroom dynamics common in real classrooms.

e) Participate in scenarios that involve both teaching and assessing student progress, including creating and grading assignments, providing constructive feedback, and adapting instructional methods to accommodate diverse learning needs.

f) Practice developing and implementing differentiated assessments, including crafting alternative assessments tailored to various learning styles and abilities to ensure all students are effectively supported.

g) Observe and critically evaluate exemplary virtual lessons to gain insights into effective teaching practices, innovative instructional strategies, and the integration of technology in online education.

h) Actively participate in the peer-review process by evaluating and providing constructive feedback on the lesson plans of fellow student teachers.

i) Receive constructive feedback from instructors/lecturers and peer student teachers to refine teaching and assessment methods and strategies.

j) Engage in reflective exercises.

6.3.1.2 Mathematics Teaching Methods Course 2

The Mathematics Teaching Methods Course 2 shall comprise three practical teaching cycles (Cycle 1 - Observation and Co-teaching, Cycle 2 - Lesson Planning and implementation, and Cycle 3- Lesson Planning and Independent Teaching). The generic activities for these Cycle include the following:

a) Work closely with experienced teachers of the nearby schools who will be responsible for providing guidance, timely feedback, and support throughout the practicum experience. This shall include observing lessons of experienced secondary school teachers based on the subjects of specialization.

b) Design and implement lesson plans based on curriculum standards and student needs, delivering instruction in nearby schools.

c) Apply classroom management strategies to maintain a positive and productive learning environment.

d) Student teachers shall engage in reflective practices, such as journaling or group discussions, to assess teaching performance and identify areas for further improvement.

The practical teaching activities for each cycle are as follows:

Cycle 1

a) Observe how experienced teachers demonstrate professionalism, ethical behaviour, and core values when interacting with students in real classrooms and other stakeholders (parents, officials etc.) outside the classroom.

b) Model professionalism and ethical behaviour in co-teaching situations.

Cycle 2

a) Design and develop lesson plan reflecting professional standards and ethical considerations under supervision of Mentors and Supervisors.

b) Practice teaching under the supervision of Mentors and Supervisors.

Cycle 3

a) Independently design and develop lesson plans reflecting professional standards and ethical considerations.

b) Independent teaching in a school environment.

c) Engage in ongoing mentoring.

6.3.2 Physics Teaching Methods Courses

There should be two courses for Physics Teaching methods (Physics Teaching Methods 1 & 2). These courses shall involve pre-teaching activities, immersive simulated teaching, and practical teaching cycles.

6.3.2.1 Physics Teaching Methods Course 1

The Physics Teaching Methods Course 1 shall comprise two phases namely pre-teaching activities and immersive simulated teaching.

Pre-Teaching Activities

The pre-teaching activities phase shall focus on helping student teachers to:

a) Attend lectures on subject-related teaching methods

b) Analyse physics syllabus for secondary schools (lower and upper)

c) Analyse the teaching and learning methods for secondary school physics

d) Articulate the role of secondary mathematics in different aspects including student's numeracy capabilities, digital literacy etc.

e) Identify and use resources that are culturally appropriate and inclusive for teaching and learning secondary mathematics.

f) Improvise and apply technology and other assistive devices in teaching and learning secondary school physics.

g) Design teaching and learning activities to cater for a diversity of learners' needs and abilities.

h) Identify and design a range of classroom assessment methods and tools including rubrics and provide feedback to students on achievement of learning outcomes in physics.

i) Take part in communication skills workshops that focus on effective verbal and written communication techniques, including practice sessions for delivering clear and engaging presentations and instructional content.

j) Engage in role-playing exercises that model classroom management scenarios, practicing techniques for maintaining order and fostering a positive learning environment.

k) Observe exemplary virtual lessons and practices.

l) Engage in reflective exercises.

Immersive Simulated Teaching

The Immersive Simulated Teaching phase shall focus on helping student teachers to:

a) Create and deliver lesson plans in a simulated classroom setting, using simulated classroom materials and scenarios.

b) Design lesson plans for simulations, specifying competences, learning outcomes, instructional materials, and assessment methods aligned with real-world standards.

c) Implement the lesson plans alongside peer student teachers but could also use virtual classrooms to replicate realistic teaching conditions.

d) Participate in exercises that mimic various classroom situations, such as handling diverse student needs or managing classroom dynamics common in real classrooms.

e) Participate in scenarios that involve both teaching and assessing student progress, including creating and grading assignments, providing constructive feedback, and adapting instructional methods to accommodate diverse learning needs.

f) Practice developing and implementing differentiated assessments, including crafting alternative assessments tailored to various learning styles and abilities to ensure all students are effectively supported.

g) Observe and critically evaluate exemplary virtual lessons to gain insights into effective teaching practices, innovative instructional strategies, and the integration of technology in online education.

h) Actively participate in the peer-review process by evaluating and providing constructive feedback on the lesson plans of fellow student teachers.

i) Receive constructive feedback from instructors/lecturers and peer student teachers to refine teaching and assessment methods and strategies.

j) Engage in reflective exercises.

6.3.2.2 Physics Teaching Methods Course 2

Physics Teaching Methods Course 2 shall comprise three practical teaching cycles (Cycle 1 - Observation and Co-teaching, Cycle 2 - Lesson Planning and Implementation, and Cycle 3- Lesson Planning and Independent Teaching). The generic activities for these cycles include the following:

a) Work closely with experienced teachers of the nearby schools who will be responsible for providing guidance, timely feedback, and support throughout the practicum experience. This shall include observing lessons of experienced secondary school teachers based on the subjects of specialization.

b) Design and implement lesson plans based on curriculum standards and student needs, delivering instruction in nearby schools.

c) Apply classroom management strategies to maintain a positive and productive learning environment.

d) Student teachers shall engage in reflective practices, such as journaling or group discussions, to assess teaching performance and identify areas for further improvement.

The practical teaching activities for each cycle are as follows:

Cycle 1

a) Observe how experienced teachers demonstrate professionalism, ethical behavior, and core values when interacting with students in real classrooms and other stakeholders (parents, officials etc.) outside the classroom.

b) Model professionalism and ethical behaviour in co-teaching situations.

Cycle 2

a) Design and develop lesson plan reflecting professional standards and ethical considerations under the supervision of Mentors and Supervisor.

b) Practice teaching under supervision of Mentors and Supervisor.

Cycle 3

a) Independently design and develop lesson plans reflecting professional standards and ethical considerations.

b) Independent teaching in a school environment.

c) Engage in ongoing mentoring.

6.4 Inclusion Course

This course aims to develop student teachers' skills for creating an inclusive classroom environment where all students, regardless of their background or abilities, feel valued and respected. Student teachers shall be equipped with knowledge and skills along the following learning areas:

a) Basic concepts in inclusive education including meaning, importance, rationale, policy and various declarations

b) Methods for identifying a student with special needs in learning

c) Methods and tools for early identification of students with special learning needs

d) Concept of intervention according to the various needs of the student

e) Methods for providing appropriate interventions to pupils with special needs

f) Methods and tools that consider the learning needs of each student

g) Methods of improving caring, teaching and learning in inclusive settings

6.5 Classroom Action Research Course

This course aims at equipping student teachers with skills for investigating their teaching practices and classroom environments to improve teaching to foster student teachers' learning outcomes. For example, the course shall be a reflective process whereby the student teachers are guided to identify a problem in their classroom practices, develop an intervention strategy, implement it, and evaluate its effectiveness. In this case student teachers will have the opportunity to engage in hands-on projects where they apply action research methods to real-world educational challenges. The course will help student teachers to:

a) Develop an understanding of concepts and principles of action research

b) Use design and methods, including interviewing, observation, and surveying

c) Apply community-based knowledge to impact teaching and learning

d) Evaluate tools for effectively observing classrooms interactions and solve pressing academic problems

e) Implement classroom action research in school settings

f) Disseminate the findings from the classroom action research.

6.6 Teacher Professional Communication Course

This course aims to strengthen communication skills among student teachers to build positive relationships with students, colleagues, and parents, and to effectively communicate in diverse educational contexts. The course will help student teachers to:

a) Communicate academic information in the classroom using appropriate language

b) Techniques of giving clear classroom instructions during teaching, learning and assessment

c) Elicit information from learners in a proper manner (e.g., questioning and probing strategies)

d) Techniques for giving feedback using appropriate language (e.g., appraising, coaching and evaluating

e) Communicate professional information outside the classroom using appropriate language

f) Use the principles of effective communication (clarity, completeness, correctness, consistency, conciseness, courtesy and consideration) to prepare professional documents (e.g., academic reports, lesson plans, schemes of work and diaries)

g) Techniques to disseminate professional information through proper channels and media using appropriate verbal and non-verbal language

h) Create a supportive learning environment through appropriate use of language

i) Communicate effectively in Tanzanian Sign Language

j) Practice active listening and attending behaviour

7. Credit Distribution

The Bachelor of Science with Education programme with a focus on Physics and Mathematics will require a minimum of 360 total credits as stipulated in the University Qualifications Framework[3] (refer to Annex 3 for course mapping). The distribution of these minimum credits is detailed in Tables 3 and 4:

Table 3. Credit Distribution

Courses	Percent	Credits Points
Academic subject courses (for 2 Subjects)	60	216
Theoretical Foundations of Teaching and Learning courses	15	54
General courses	5	18
Practical Teacher Training[4] (for 2 Teaching Methods Subjects)	20	72
Total	**100**	**360**

[3] Tanzania Commission for Universities (2012). University Qualifications Framework

[4] Pre- teaching activities and immersive simulated teaching will constitute 10 credits (Pre-teaching activities (4 credits) and immersive simulated teaching 6 credits. The practical teaching cycles will constitute 26 credits (Cycle 1 (6) credits, Cycle 2 (8 credits), and Cycle 3 (12 credits). Consequently, Teaching Methods 1 shall have 10 credits while Teaching Methods 2 shall have a total of 26 credits.

Table 4. Course Mapping for Bachelor of Science with Education Programme (Physics and Mathematics)

	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Course 7
Semester 1	Course Physics 1 9 CP	Course Physics 2 9 CP	Course Math 1 9 CP	Course Math 2 9CP	Philosophy of Education 8 CP	Educational Psychology 8 CP	Elective
Semester 2	Course Physics 3 10 CP	Course Physics 4 10 CP	Course Math 3 10 CP	Course Math 4 10CP	Inclusive Education 6 CP	Sociology of Education 7 CP	Elective
Semester 3	Course Physics 5 10 CP	Course Physics 6 10 CP	Course Math 5 10 CP	Curriculum & Teaching 8 CP	Professional Communication for Teachers 6 CP	Assessment and Evaluation 8CP	Elective
Semester 4	Course Physics 7 10 CP	Course Math 6 10 CP	Course Math 7 10 CP	Instructional Leadership 7 CP	Professionalism and Ethics 8 CP	Classroom Action Research 6 CP	Elective
Semester 5	Course Physics 8 10 CP	Course Physics 9 10 CP	Course Math 8 10 CP	Course Math 9 10 CP	Physics Teaching Methods 1 10 CP	Mathematics Teaching Methods 1 10 CP	Elective
Semester 6	Course Physics 10 10 CP	Course Physics 11 10 CP	Course Math 10 10 CP	Course Math 11 10 CP	Physics Teaching Methods 2 26 CP	Mathematics Teaching Methods 2 26 CP	Elective

CP 216	Academic subject courses	144 CP	Education Courses		Elective courses

PART ONE

PRELIMINARIES

1.1. Introduction

In teacher education, practical teacher training (PTT) is a critical and transformative phase for student teachers, serving as a cornerstone of pre-service teacher preparation. It immerses student teachers in the realities of the classroom, offering them invaluable insights into the intricacies of teaching. Such exposure deepens their understanding of educational dynamics while significantly boosting their motivation, attitudes, and commitment to pursuing a teaching career. Through PTT, student teachers engage with practical applications of theoretical concepts, learning to adapt approaches and innovate in real classroom environments.

Universities must elevate their PTT programs to meet contemporary educational standards and requirements. They are anticipated to focus on critical areas such as personality development, lesson planning, instructional methods, and the creation and utilization of educational materials. By refining these components, PTT will better bridge the gap between theory and practice, ensuring that student teachers acquire the robust, hands-on experience necessary for effective teaching in real classroom settings. This advancement in training is essential for preparing teachers to adeptly respond to the demands of the CBC and contribute to a more dynamic and responsive educational system. Furthermore, the improved PTT is crucial for the successful implementation of the revised ETP (2014) eevised in 2023, which emphasizes the need for teachers to support the effective development of competencies among students. PTT must be redesigned to ensure that student teachers are familiar with CBC's requirements and proficient in implementing it in their future classrooms. PTT should equip student teachers with the practical skills and insights needed to meet the policy's objectives. This alignment will ensure that teachers are prepared to create supportive learning environments that adhere to educational standards, ultimately fostering a more effective and responsive education system.

1.2. Purpose of the Guideline

Universities play a crucial role in ensuring educational quality by preparing skilled teachers capable of effectively implementing competency-based curricula. This responsibility includes delivering rigorous training that equips student teachers with the skills necessary to engage student teachers and meet evolving educational standards. This guideline provides a harmonized approach for designing and implementing practical teacher training courses for student teachers within universities. Through this guideline, universities can ensure their teacher preparation programs are consistent, current, and aligned with best practices. This alignment will equip student teachers with the essential skills to effectively uphold high educational standards.

PART TWO

FOUNDATIONS OF PRACTICAL TEACHER TRAINING

2.1 Philosophy of Practical Teacher Training

The philosophy underpinning PTT views learning as an active and dynamic process, grounded in constructivist theories that emphasize knowledge construction through interaction with one's environment. This philosophy underscores the necessity of acquiring a strong foundation in both subject matter and pedagogy before applying their skills in real classroom settings. Effective PTT integrates this foundational knowledge with skill development and practical experience, ensuring that student teachers are prepared to bridge theory and practice. The training emphasizes not only the understanding of core content and pedagogical strategies but also the development of key skills essential for effective teaching. This includes the use of technology, the cultivation of 21st-century skills such as digital literacy and adaptive problem-solving, and the ability to create inclusive and equitable learning environments.

By bridging rigorous theoretical instruction with hands-on practice, PTT fosters the development of critical skills and competencies needed to address diverse classroom challenges. This comprehensive approach equips future teachers with the practical insights and abilities required to engage students effectively, navigate complex educational scenarios, and contribute to a more dynamic and inclusive educational landscape.

2.2 Objectives of Practical Teacher Training

The primary objectives of PTT include:

a) enhancing pedagogical skills through hands-on experience in real classroom settings to develop and refine teaching techniques and strategies.

b) enabling student teachers to apply theoretical knowledge gained during their programme in practical situations, bridging the gap between theory and real-world application.

c) supporting the cultivation of essential professional attitudes and behaviours that contribute to effective and ethical teaching.

d) equipping student teachers with the practical skills to effectively incorporate technology into their teaching practices, enhancing their ability to engage students and support diverse learning needs through digital tools.

e) developing essential 21st-century skills in student teachers, such as critical thinking, digital literacy, team work, collaboration, and adaptive problem-solving, to prepare them for the demands of modern educational environments.

f) fostering a culture of creating and maintaining inclusive classrooms that address the diverse learning needs of all students, ensuring equitable learning opportunities and fostering a supportive educational atmosphere.

g) fostering the ability to reflect critically on teaching practices and experiences, encouraging continuous professional growth and adaptation to improve instructional effectiveness and student outcomes.

2.3 Learning Outcomes of Practical Teacher Training

a) Knowledge:

(i) Demonstrate a thorough understanding of the subject matter they are expected to teach, including key concepts, principles, and content knowledge, enabling them to effectively plan and deliver instruction.

(ii) Articulate relevant pedagogical theories and instructional strategies, demonstrating the ability to design and implement effective lesson plans that address diverse learning styles and educational needs.

(iii) Exhibit knowledge of current educational technologies and digital tools, showing the ability to integrate these resources into their teaching practices to enhance student engagement and support diverse learning needs.

b) Skills:

(i) Apply pedagogical content knowledge to support students' development of competences specified in the curriculum.

(ii) Use instructional strategies, assessment and feedback, and strong rapport-building techniques that support diverse student needs to enhance student engagement and behaviour management.

(iii) Demonstrate skills in managing classroom dynamics, establishing a positive learning environment, and implementing strategies for maintaining order and fostering student participation.

(iv) Integrate technology into teaching to enhance teaching and create meaningful learning experiences for students.

(v) Reflect on real classroom situations to critically evaluate their own teaching practices, including their effectiveness in delivering content and managing the classroom.

(vi) Apply research skills to conduct classroom research to improve teaching and learning among students in subjects of specialization.

c) Attitude:

(i) Interact professionally with students, experienced teachers, parents, and other relevant stakeholders.

(ii) Demonstrate ethics, integrity, professionalism and commitment to equity and inclusion, reflective practice, and collaboration.

(iii) Demonstrate appropriate attitudes and values of a qualified teacher.

2.4 University-School Partnership

Ensuring the effective implementation of PTT in schools is a critical responsibility for universities, as outlined in ETP (2023 Edition). The policy emphasizes the importance of robust university-school partnerships (USPs) in the success of teacher preparation programs. These partnerships are designed to bridge the gap between theoretical knowledge and practical classroom experience, providing student teachers with invaluable real-world insights and skills while simultaneously offering schools fresh perspectives and additional resources. In today's educational landscape, it is not enough for universities to merely deliver academic instruction. They must actively engage with schools to create dynamic, mutually beneficial partnerships that enhance the quality of teacher training. A successful partnership is characterized by clear communication, shared goals, and well-defined roles that leverage the strengths of both institutions. This collaborative approach ensures that student teachers receive comprehensive support throughout their training, and schools benefit from the latest educational methodologies and enthusiastic new educators.

The role of universities extends beyond mere coordination; they are pivotal in setting the stage for a successful PTT experience. This involves establishing formal agreements, planning and assessing needs, integrating cultures, providing effective mentorship, facilitating professional development, and ensuring structured teaching practice. By doing so, universities shall facilitate the creation of a conducive environment where student teachers can thrive, and schools can effectively contribute to their development. In this context, the university's responsibilities are multifaceted and crucial for the overall success of the PTT process. The guideline outlines essential steps universities must take to ensure that PTT is conducted effectively, creating a collaborative environment that benefits both student teachers and the educational institutions.

a) Steps for ensuring successful PTT in schools through USPs

(i) **Define objectives and formalize agreements**. Universities shall work closely with partner schools to establish clear, shared objectives for the PTT program. This collaboration should result in a Memorandum of Understanding (MoU) that details each institution's roles, responsibilities, and contributions, as well as the specific goals of the partnership.

(ii) **Form joint committees**. Establish joint committees comprising representatives from both the university and the school. These committees will oversee the partnership and implementation of the agreed activities regarding the PPT.

(iii) **Promote integration and provide orientation**. Implement orientation programs designed to acclimate both student teachers and school staff to each other's environments and expectations. Facilitate exchange activities to foster mutual understanding and smooth integration between the university and school cultures.

(iv) **Ensure effective placement and mentoring**

Ensure effective placement and mentoring by strategically aligning the number of student teachers with available school and classroom opportunities. This approach guarantees that student teachers receive ample instructional time to practice and refine their teaching skills.

(v) **Monitor the partnership**. Regularly review the progress and effectiveness of the PTT program and the partnership. Use feedback from student teachers, mentors, and school management to identify areas for improvement and make necessary adjustments to enhance the overall quality and impact of the program.

PART THREE

STRUCTURE OF PRACTICAL TEACHER TRAINING

3.1 Overview of the Structure

PTT has three integral components to ensure a comprehensive and effective learning experience. The components include pre-training preparation, immersive simulated teaching experiences and hands-on teaching practice cycles within nearby schools. The first two components shall take place in a residential setting where student teachers engage in foundational activities and practice teaching in controlled, simulated classroom scenarios. The final component shall be conducted in nearby schools (Figure 1).

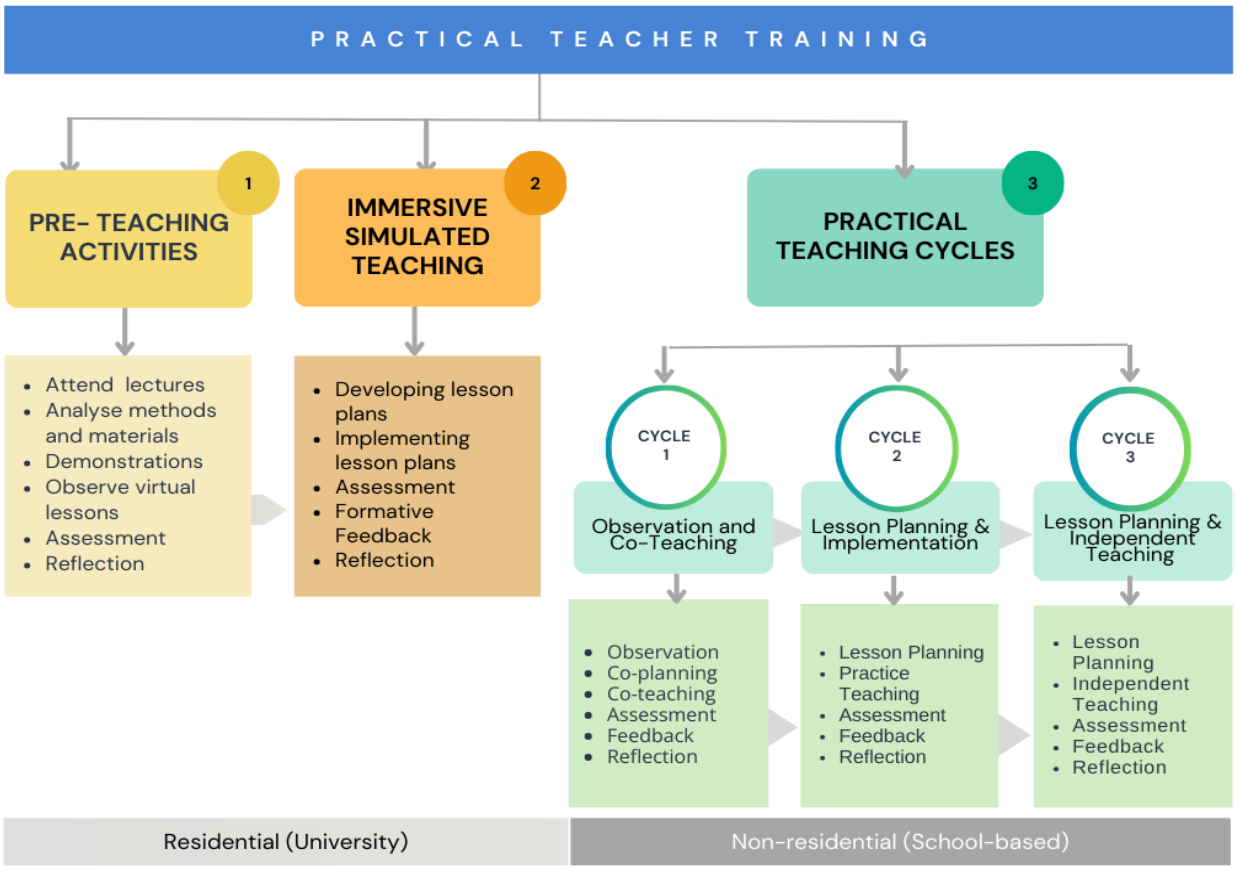

Fig. 1. Structure of Teaching Methods Courses

3.1.1 Pre-teaching activities Phase

This initial phase involves thorough preparation to equip student teachers with foundational knowledge and skills. During this phase, which shall take place in a residential setting, student teachers will engage in various preparatory teaching activities such as attending lectures and seminars on subject-related teaching methods, analysis of subject

related syllabus including teaching and learning methods for specific subjects in secondary schools.

a) Learning Outcomes

For this phase, student teachers are expected to demonstrate:

i) Mastery of subject matter
ii) Planning and organisational skills
iii) Communication skills
iv) Skills for managing classroom dynamics
v) Digital skills
vi) Observational skills
vii) Readiness for simulated teaching

b) Learning activities

To achieve the outcomes of the PTT component, student teachers shall engage in a variety of activities, including:

a) Attend lectures on subject-related teaching methods
b) Analyse syllabus for secondary schools (lower and upper)
c) Analyse the teaching and learning methods for secondary school
d) Identify and use resources that are culturally appropriate and inclusive for teaching and learning secondary subjects.
e) Improvise and apply technology and other assistive devices in teaching and learning secondary school subjects
f) Design teaching and learning activities to cater for a diversity of learners' needs and abilities.
g) Identify and design a range of classroom assessment methods and tools including rubrics and provide feedback to students on achievement of learning outcomes in secondary school subjects
h) Take part in communication skills workshops that focus on effective verbal and written communication techniques, including practice sessions for delivering clear and engaging presentations and instructional content.
i) Engage in role-playing exercises that model classroom management scenarios, practicing techniques for maintaining order and fostering a positive learning environment.
j) Observe exemplary virtual lessons and practices.

k) Engage in reflective exercise

c) Assessment

Student teachers shall be assessed on their:

i) mastery of subject matter theoretical knowledge

ii) effectiveness in delivering clear, engaging, and informative content both verbally and in written form.

iii) ability to manage classroom scenarios, implement classroom management techniques, and create a positive learning environment.

iv) ability to incorporate educational technology tools into their lesson plans. Assess how effectively they use technology to enhance instructional delivery and support student learning.

v) observations of exemplary virtual lessons.

vi) ability to analyse effective teaching practices, instructional strategies, and the use of technology.

vii) mastery of various assessment methods.

Assessment methods for this phase may include the following: written essays, tests, and examinations, presentations, lesson plan reviews, observation, portfolio, and peer reviews.

d) Reflection

Student teachers shall reflect on the effective strategies for integrating theory into practice.

3.1.2 Immersive Simulated Teaching (IST)

IST shall be conducted on campus to support student teachers in building confidence as they engage with teaching scenarios and receive prompt feedback. This phase shall be designed to build confidence and competence as student teachers practice and refine their pedagogical techniques, classroom management skills, and lesson delivery methods. IST shall be hands-on experience in nature, preparing student teachers for real classroom challenges, ensuring they enter their teaching practice cycles with a strong foundation of practical skills and self-assurance necessary for success in teaching.

a) Objective

The objective of the simulated teaching phase is to provide student teachers with hands-on experience in simulated classroom scenarios, enabling them to refine their pedagogical techniques, enhance classroom management, and build confidence, thereby preparing them effectively for real-world teaching challenges.

b) Expected learning outcomes

Generally, the expected outcome of simulated teaching experience shall be to build foundational teaching skills, gain confidence in instructional techniques, and prepare for real-world classroom challenges. Specifically, student teachers are expected to:

i) Develop pedagogical skills by effectively applying pedagogical strategies in simulated classroom scenarios.

ii) Demonstrate enhanced classroom management skills by managing classroom dynamics and maintaining a positive learning environment.

iii) Build confidence in instructional capabilities through repeated practice and constructive feedback.

iv) Solve problems creatively when faced with simulated classroom challenges.

v) Prepare for real-world teaching by translating simulated experiences into effective classroom practices during practical teaching cycles.

c) Learning activities for IST

i) Create and deliver lesson plans in a simulated classroom setting, using simulated classroom materials and scenarios.

ii) Design lesson plans for simulations, specifying competences, learning outcomes, instructional materials, and assessment methods aligned with real-world standards.

iii) Implement the lesson plans alongside peer student teachers but could also use virtual classrooms to replicate realistic teaching conditions.

iv) Participate in exercises that mimic various classroom situations, such as handling diverse student needs or managing classroom dynamics common in real classrooms.

v) Participate in scenarios that involve both teaching and assessing student progress, including creating and grading assignments, providing constructive feedback, and adapting instructional methods to accommodate diverse learning needs.

vi) Practice developing and implementing differentiated assessments, including crafting alternative assessments tailored to various learning styles and abilities to ensure all students are effectively supported.

vii) Observe and critically evaluate exemplary virtual lessons to gain insights into effective teaching practices, innovative instructional strategies, and the integration of technology in online education.

viii) Actively participate in the peer-review process by evaluating and providing constructive feedback on the lesson plans of fellow student teachers.

ix) Receive constructive feedback from instructors/lecturers and peer student teachers to refine teaching and assessment methods and strategies.

x) Engage in reflective exercise

d) Assessment

Student teachers shall be assessed on:

i) their ability to create and deliver lesson plans in a simulated classroom, including their use of instructional materials, alignment with CBC competencies, and effectiveness in achieving learning outcomes.

ii) their handling of various student learning needs, management of classroom dynamics, and adaptation to realistic teaching challenges.

iii) their development and implementation of differentiated assessments, evaluating their ability to create alternative assessments tailored to diverse learning styles and abilities.

iv) their participation in the peer-review process, including their ability to provide and receive constructive feedback, and how they integrate this feedback to refine their lesson plans and teaching strategies.

Assessment methods for this phase may include the following: written quizzes, performance tasks, projects, observations, presentations, lesson plan reviews, simulated lessons, and peer reviews.

e) Feedback

Student teachers receive feedback from instructors on:

i) the effectiveness of lesson delivery during simulated teaching, focusing on how well student teachers apply instructional strategies, align with CBC, and engage students in achieving learning outcomes.

ii) student teachers' handling of diverse classroom scenarios, including their ability to manage classroom dynamics, address various student needs, and adapt to challenges encountered in simulated settings.

iii) how effectively student teachers develop and implement differentiated assessments, providing feedback on their ability to create alternative assessments that cater to different learning styles and abilities.

iv) student teachers' contributions to the peer-review process, focusing on their ability to give and receive constructive feedback and how they use this input to enhance their lesson planning and teaching methods.

f) Reflection

Student teachers shall reflect on the effectiveness of teaching and assessment strategies and their impact on student learning outcomes.

3.1.3 Practical Teaching Cycles (PTCs)

TPC shall be designed to provide student teachers with essential hands-on experience in real classroom settings. In this phase, student teachers shall engage in a series of structured teaching periods at nearby schools or teacher colleges, where they implement and adapt instructional strategies developed during their initial phases of the training. It shall allow student teachers to apply their theoretical knowledge, progressively take on teaching responsibilities, and receive feedback from experienced mentors. PTCs shall be designed and implemented to ensure a smoother transition from university training to effective, real-world teaching.

a) Objective

The objective of teaching cycles is to provide student teachers with opportunities to apply and adapt teaching skills in real classroom environments, gaining practical experience with real students and school settings.

b) Expected outcome

Broadly, the expected outcome of teaching cycles is for student teachers to gain hands-on experience, integrate theoretical knowledge with practical application, and develop a deeper understanding of effective teaching practices through direct interaction with students and teachers. Specifically, student teachers are expected to:

i) Demonstrate the ability to implement instructional strategies effectively in real classroom settings, delivering engaging and well-structured lessons.

ii) Demonstrate the ability to manage classroom dynamics proficiently by applying effective classroom management techniques to create a positive and productive learning environment.

iii) Show the ability to conduct and utilise various assessments to evaluate student progress, provide meaningful feedback, and adjust teaching approaches based on assessment results.

iv) Reflect critically on teaching practices, integrating feedback from mentors and peers to make informed improvements and enhance overall teaching effectiveness.

v) Integrate educational technology and digital tools into lessons, enhancing student engagement and addressing diverse learning needs.

c) Generic activities for PTCs

i) Work closely with experienced teachers of the nearby schools who will be responsible for providing guidance, timely feedback, and support throughout the practicum experience. This shall include observing lessons of experienced secondary school teachers based on the subjects of specialization.

ii) Design and implement lesson plans based on curriculum standards and student needs, delivering instruction in nearby schools.

iii) Apply classroom management strategies to maintain a positive and productive learning environment.

iv) Engage in reflective practices, such as journaling or group discussions, to assess teaching performance and identify areas for further improvement.

d) Scope of PTCs

Cycle 1: Observation and Co-Teaching

i) Observation Phase

Student teachers shall observe how experienced teachers demonstrate professionalism, ethical behaviour, and core values in their interactions with students, colleagues, and parents, how teachers convey subject matter knowledge and expertise, the instructional strategies used, how classroom management is handled, the implementation of inclusive practices, and the use of technology as a pedagogical tool.

ii) Co-Teaching Phase

Student teachers shall model professionalism and ethical behaviour in co-teaching situations, assist in delivering lessons that incorporate subject matter knowledge effectively, participate in implementing instructional strategies, support classroom management efforts, assist in applying inclusive practices, and help integrate technology into lessons.

iii) Assessment

Assess the student teachers':

a) ability to model professionalism and ethical behaviour in co-teaching situations, including their adherence to professional standards and collaborative practices.

b) ability to assist in delivering lessons that effectively incorporate subject matter knowledge.

c) participation in implementing instructional strategies, including their ability to apply appropriate methods and techniques to enhance student learning.

d) support in classroom management efforts, including their ability to assist in maintaining a positive and well-organized learning environment.

e) ability to support the application of inclusive practices, including their contribution to creating an equitable learning environment for all students.

f) role in integrating technology into lessons, including their effectiveness in using digital tools to support and enhance teaching and learning.

Assessment methods for this cycle may include: Observations, portfolio, co-teaching evaluation forms, and peer assessments.

iv) Feedback

Observation Phase: Feedback should focus on how well student teachers interpreted and applied observations of professionalism, instructional strategies, classroom management, and technology use.

Co-Teaching Phase: Feedback should address their effectiveness in modelling professionalism, contributing to lesson delivery, supporting classroom management, applying inclusive practices, and integrating technology.

v) Reflection

Using reflective journals, student teachers shall reflect on how observing experienced teachers enhanced their understanding of professionalism, instructional strategies, and classroom management. Additionally, consider how modelling these practices and integrating technology during co-teaching influenced collaboration skills and the application of inclusive practices.

Cycle 2: Lesson Planning and Implementation

i) Lesson Planning:

Student teachers shall design lesson plans reflect professional standards and ethical considerations, such as respecting student confidentiality and promoting a positive learning environment, develop lesson plans demonstrating deep understanding of subject matter, plan lessons using diverse instructional strategies, include strategies for effective classroom management, incorporate inclusive practices and accommodations, and plan for effective use of technology.

ii) Practice Teaching:

Student teachers shall maintain professionalism, deliver lessons with a strong grasp of the subject, adapt instructional strategies to diverse needs, manage the classroom effectively, implement inclusive practices, and use technology to enhance learning.

iii) Assessment:

The assessment of student teachers shall involve assessing:

a) how their lesson plans reflect professional standards and ethical considerations, aligning with CBC by fostering a positive learning environment.

b) the depth of subject matter knowledge in lesson plans, ensuring alignment with CBC and effective support for competence-based outcomes.

c) the use of diverse instructional strategies in lesson plans to address various learning styles and needs, in line with CBC's focus on personalized learning.

d) the maintenance of professionalism and ethical behaviour in teaching practice, aligning with CBC standards and respect for diverse learners.

e) the effectiveness of lesson delivery, focusing on the clarity of content and alignment with CBC for developing knowledge, skills, attitudes and values.

f) the effectiveness of classroom management techniques in creating and maintaining a positive learning environment that supports CBC's focus on a productive classroom atmosphere.

Assessment methods for this cycle may include: portfolio, lesson plan evaluations, classroom observations, and rubrics.

iv) Feedback:

Student teachers shall receive feedback on their professionalism, subject matter delivery, instructional strategies, classroom management, inclusive practices, and technology integration.

v) Reflection:

Using reflective journals, student teachers to reflect on:

a) how well their lesson plans adhered to professional standards, including how effectively they fostered a positive learning environment and maintained student confidentiality.

b) the effectiveness of the diverse instructional strategies used in the lesson plans, and how well they addressed different learning styles and needs in alignment with CBC principles

Cycle 3: Independent Teaching and Assessment

i) Lesson Planning:

Student teachers shall design lesson plans reflecting professional standards and ethical considerations, such as respecting student confidentiality and promoting a positive learning environment, demonstrating a deep understanding of subject matter, pushing diverse instructional strategies, including strategies for effective

classroom management, incorporating inclusive practices and adaptations and plan for effective use of technology.

ii) Independent Teaching:

Student teachers shall teach lessons while upholding high standards of professionalism and ethical behaviour, showcase a deep understanding of their subject matter, independently utilize and adapt instructional strategies, manage the classroom effectively, apply inclusive practices and adaptations, and integrate technology seamlessly into their teaching.

iii) Assessment:

Student teachers shall be assessed on:

a) the effectiveness of the lessons they teach in promoting a positive learning environment and aligning with CBC.

b) how well they uphold professionalism and core values in their teaching practice, including adherence to ethical standards.

c) the extent to which lesson plans and teaching practices align with CBC, focusing on their ability to enhance students' understanding, apply effective instructional strategies, and integrate technology.

d) the effectiveness of instructional and assessment strategies, classroom management techniques, inclusive practices, and technology integration in supporting CBC and promoting a positive learning environment.

Assessment methods for this cycle may include: portfolio, lesson plan evaluations, classroom observation, and teaching effectiveness rubrics.

iv) Feedback

Feedback to student teachers should focus on providing clear and actionable insights into their use of instructional strategies, classroom management, inclusive practices, and technology integration. Ensure the feedback is supportive, aimed at guiding improvements and reinforcing strengths to enhance their alignment with CBC and overall teaching effectiveness.

v) Reflection

Student teachers shall reflect on their experiences with professionalism and core values, addressing challenges faced and solutions implemented. They must evaluate the effectiveness of their subject matter delivery, instructional strategies, and classroom management. Additionally, they should assess the

impact of inclusive practices and the integration of technology in their teaching, ensuring alignment with CBC.

3.2 Supervision and Mentoring

3.2.1 Mentors and Supervisors

Mentors shall be experienced secondary school teachers and university subject teacher educators.

3.2.2 Mentor Assignment

i) Universities and schools shall assign mentors who model high standards of professionalism and ethical behaviour, to provide timely and constructive guidance on integrating core values into teaching practice.

ii) Mentors shall schedule regular meetings with student teachers to discuss progress, provide feedback, and offer guidance on professionalism and values, in addition to other focus areas.

3.2.3 Supervision Structure

i) Universities shall establish protocols for observing and providing feedback on professionalism, ethical behaviour, subject matter knowledge, instructional strategies, classroom management, inclusion, and technology use.

ii) Universities shall implement a structured feedback mechanism to support continuous improvement in all focus areas.

Annex 2: Learning Matrix of the Bachelor of Science with Education Programme (Physics and Mathematics)

SN	Course Name	Lecture Hours	Tutorial/ Seminars	Assignment Hours	Independent Study and Research Hrs.	Practical Hrs.	Total Hours	Total Credits
Academic Courses								
1	Mathematics Course 1	30	15	15	15	15	90	9
2	Mathematics Course 2	30	15	15	15	15	90	9
3	Mathematics course 3	40	15	15	15	15	100	10
4	Mathematics Course 4	40	15	15	15	15	100	10
5	Mathematics Course 5	40	15	15	15	15	100	10
6	Mathematics Course 6	40	15	15	15	15	100	10
7	Mathematics Course 7	40	15	15	15	15	100	10
8	Mathematics Course 8	40	15	15	15	15	100	10
9	Mathematics Course 9	40	15	15	15	15	100	10
10	Mathematics Course 10	40	15	15	15	15	100	10
11	Mathematics Course 11	40	15	15	15	15	100	10
12	Physics Course 1	30	15	15	15	15	90	9
13	Physics Course 2	30	15	15	15	15	90	9
14	Physics course 3	40	15	15	15	15	100	10
15	Physics Course 4	40	15	15	15	15	100	10
16	Physics Course 5	40	15	15	15	15	100	10

17	Physics Course 6	40	15	15	15	15	100	10
18	Physics Course 7	40	15	15	15	15	100	10
19	Physics Course 8	40	15	15	15	15	100	10
20	Physics Course 9	40	15	15	15	15	100	10
21	Physics Course 10	40	15	15	15	15	100	10
22	Physics Course 11	40	15	15	15	15	100	10
Theoretical Foundations of Teaching and Learning Courses								
23	Philosophy of Education	30	10	15	10	15	80	8
24	Curriculum and Teaching	30	10	15	10	15	80	8
25	Education Psychology	30	10	15	10	15	80	8
26	Sociology of Education	30	0	15	10	15	70	7
27	Assessment and Evaluation	30	10	15	10	15	80	8
28	Instructional Leadership	30	0	15	10	15	70	7
29	Professional and Ethics	30	10	15	10	15	80	8
General Courses								
30	Inclusive Education	15	0	15	15	15	60	6
31	Professional Communication for Teachers	15	0	15	15	15	60	6
32	Classroom Action Research	15	0	15	15	15	60	6
Teaching and Learning Methods								
33	**Teaching Methods 1 - Physics - Total***	**40**	**30**	**0**	**0**	**30**	**100**	**10**

	Pre-teaching activities	25	15	0	0	0	40	4
	Immersive simulated teaching	15	15	0	0	30	60	6
34	**Teaching Methods 2 - Physics - Total***	**0**	**30**	**45**	**65**	**120**	**260**	**26**
	Cycle 1- Observation and Co-Teaching	0	15	0	15	30	60	6
	Cycle - Lesson Planning and Implementation	0	15	15	20	30	80	8
	Cycle 3-Lesson Planning and Independent Teaching	0	0	30	30	60	120	12
35	**Teaching Methods 1 – Mathematics Total***	**40**	**30**	**0**	**0**	**30**	**100**	**10**
	Pre-teaching activities	25	15	0	0	0	40	4
	immersive simulated teaching	15	15	0	0	30	60	6
36	**Teaching Methods 2 – Mathematics- Total***	**0**	**30**	**45**	**65**	**120**	**260**	**26**
	Cycle 1- Observation and Co-Teaching	0	15	0	15	30	60	6
	Cycle - Lesson Planning and Implementation	0	15	15	20	30	80	8
	Cycle 3-Lesson Planning and Independent Teaching	0	0	30	30	60	120	12
Total HRS/Credits		**1195**	**500**	**570**	**575**	**780**	**3600**	**360**

*The assessment of Teaching Methods courses will constitute a summative assessment of 40% and continuous assessment of 60% (teaching). Moreover, a student teacher must successfully complete and demonstrate mastery of learning activities for each PTT phase and cycle before being allowed to proceed to the next phase or cycle.

Minimum Credits = 360

Maximum Credits = 396 (Additional of 10% which is distributed in three years.

Annex 3. Prototype of Master of Primary Teacher Education Programme

1. Introduction

The ETP 2014 (2023 Edition) and the Basic and Teacher Education Reform Committee Report (2023) stipulate the need for college tutors to be registered primary school teachers with teaching experience and a master's degree in primary teacher education. In response to this demand, this programme is a specialized educational initiative aimed at streamlining the training process for licensed primary school teachers seeking advanced qualifications in teacher education. It combines both undergraduate and postgraduate studies into a cohesive framework, offering a unified route for professional advancement as stipulated by the ETP 2014 (2023 Edition) Section 3.6.1.3. This integrated approach is particularly beneficial for in-service teachers with pedagogical knowledge, skills, values and teaching experience. It aims to empower these educators with advanced knowledge and skills necessary for teaching in primary schools.

The Master of Primary Teacher Education programme will be offered over six semesters, equivalent to three years, culminating in a master's degree and is meant for those who wish to become tutors in teacher colleges.

This programme acknowledges the skills and pertinent experiences obtained from Diploma colleges, participation in the internship and teaching experience at primary schools, permitting them to be exempted from all courses of undergraduate programme in the 1st year, equivalent to 120 credits. Hence, remained with 240 credits to be completed in four semesters. **In-service primary school teachers eligible for admission in this programme must hold a diploma in primary teacher education and have a minimum of two years of teaching experience at the primary school level. At the end of the bachelor degree programme there shall be an exit point and awarded the Bachelor in Primary Teacher Education. Those who qualify to pursue a master's programme (i.e., have a GPA of at least 2.7 or a B grade) and are interested in becoming college tutors may proceed to the master's level.**

2. Philosophy

The philosophy of the Master of Primary Teacher Education Programme emphasizes a comprehensive philosophy that includes:

i) holistic development, focusing on cognitive and interpersonal skills; continuity in learning, allowing for an in-depth exploration of educational theories, methodologies, and research practices over time.

ii) research-informed practice, which involves critical evaluation of educational practices and application of evidence-based strategies,

iii) an interdisciplinary approach, equipping teachers with diverse tools to meet the varied needs of primary school students and student teachers; and

iv) lifelong learning, ensuring teachers stay updated on advancements in pedagogy, technology, and student requirements.

3. Programme Objectives

The Master of Primary Teacher Education Programme is designed to develop skilled educators who can adapt to scientific, technological, and social changes, preparing Tanzanian citizens with the knowledge, skills, and positive attitudes essential for upholding human rights, equality, and lifelong learning. The specific objectives of the programme are to enable teachers to:

a) Gain a deep theoretical grasp of teacher education, professional ethics, and teaching foundations.

b) Develop expertise in a variety of effective instructional techniques.

c) Develop competence in implementing and utilizing assessment and evaluation methods that support competency-based education.

d) Apply creative and innovative approaches to meet diverse student needs.

e) Use ICT and assistive technologies to enhance teaching and learning physics and mathematics.

f) Develop skills for early detection and intervention for students with special needs.

g) Strengthen the use of language to support teaching and learning outcomes.

h) Acquire skills to conduct research aimed at improving teaching, learning, and assessment of primary school subjects (sciences subjects, mathematics, languages, geography & environment, *Historia ya Tanzania na Maadili*, Arts and Sport), special Education, and Early childhood.

i) Develop leadership skills among teachers to take roles within schools

These objectives collectively aim to produce competent, reflective, and adaptable college tutors who can positively impact their students' educational journeys.

4. Programme Expected Learning Outcomes

On successful completion, the teachers will demonstrate ability to:

a) Integrate an in-depth, broad and coherent knowledge of educational theory and practice relevant to teacher training colleges.

b) Apply content knowledge in physics and mathematics to design learning activities that reflect best practices and meet the curriculum of teacher training colleges., assessment and reporting requirements.

c) Create a learning environment where all students feel valued, supported, and able to succeed.

d) Align curriculum with instruction and assessment

e) Modify curriculum, instruction and assessment to the needs of diverse learners

f) Assess, provide feedback and report on student learning.

g) Apply practical strategies for creating rapport with students and guiding student teachers' behaviour

h) Demonstrate ethical, integrity, professionalism and commitment to equity and inclusion, reflective practice, and collaboration.

i) Integrate technology into their teaching to enhance learners' understanding and experiences

j) Use a range of modes and forms of communication appropriate to the audience within educational contexts.

k) Refine practical teaching based on continual reflection and professional development

l) Have a thorough understanding of the educational literature and be able to draw on and use evidence-based practices to create effective engaging learning environments and experiences.

5. Teaching and Learning Methods

The programme utilizes a diverse range of teaching and learning methods to actively engage students while accommodating learners with diverse needs. The methods are meant to foster development and application of 21st century skills including critical thinking, problem-solving abilities and a deep understanding of both foundation and advanced pedagogical courses/subjects.

The following are methods to be used in delivering the programme:

a) Project-based learning to engage teachers in real-world projects that require critical thinking and problem-solving skills.

b) Games to make learning more engaging and motivating.

c) Inquiry-based learning to encourage teachers to ask questions, conduct investigations, and discover answers through guided exploration.

d) Collaborative learning to facilitate group work and peer-to-peer interaction to enhance learning through shared experiences and collective problem-solving.

e) Virtual simulations, interactive software, and educational apps to enhance understanding and engagement.

f) Differentiated instructions to meet the diverse needs and learning styles of teachers.

g) Reflective practice to encourage student teachers to regularly reflect on their learning experiences and teaching practices to foster continuous improvement.

By integrating technology, utilizing active learning strategies, and differentiating instruction, student teachers can create an enriching learning environment that prepares college tutors for success in their subjects of specialization (pre-primary, primary and special education).

6. Assessment Strategies

The programme is designed to ensure that student teachers acquire the necessary knowledge, skills, and competencies required for effective teaching of courses in their specialization using the pre-primary, primary and special education curricula. The assessment methods are aligned with the objectives of the Master Programme for Primary Teacher Education. The following are assessment methods to be used in this programme:

a) Formative assessments including quizzes and tests, observations, assignments, peer reviews etc. to provide teachers with timely feedback during the learning process.

b) Summative assessment, include university examinations, projects and portfolios that provide data on teachers' achievements and programme effectiveness.

c) Performance-based assessments including presentations and demonstrations to enable teachers to demonstrate the real-world application of knowledge.

d) Self and peer assessment to enhance teachers' engagement but also cultivates essential skills such as critical thinking, collaboration, and self-regulation.

e) Authentic Assessment including case studies and simulations to assess the theoretical knowledge and practical competencies.

7. Nature of Courses

The courses for this programme are designed to deepen teachers' understanding of both foundational and advanced pedagogical courses to strengthen their professional expertise in teaching at both primary schools and teacher education colleges. This will be a special programme containing courses that spread from bachelor's degree to master degree. However, there shall be an exit point at the end of the bachelor's degree programme. Therefore, the development of courses in this programme shall follow the spiral curriculum design. Through the courses, teachers shall develop requisite knowledge, skills and attitudes, including conducting educational research that will strengthen their respective professions. The courses shall be divided into two main categories, namely bachelor's degree courses and master's degree courses.

7.1 Bachelor Degree Courses

These courses shall aim to extend and uplift the knowledge, skills, and attitudes learned at Diploma Teacher education.

i) **Theoretical foundations of teaching and learning courses;** These courses include; philosophy of education, pedagogy of teacher education and teachers' professional ethics. These are courses for offering a robust theoretical grounding, they cover historical, philosophical, and psychological perspectives that have shaped the teaching and learning process and ethical principles guiding the teaching profession.

ii) **Educational Assessment in Primary Education** This is a course for developing competencies in formative, summative, and authentic assessments in primary education. This course shall be designed to equip teachers to accurately measure and track student progress and proficiency across different competencies, apply basic principles of effective assessment practices for addressing specific educational needs and develop assessment methods appropriate for instructional decisions at primary education level. This will include ability to use assessment results in instructional planning, teaching and school improvement.

iii) **Child Health and Care:** This course provides student teachers with knowledge and skills necessary for health and psychological care for pupils at primary schools. It covers the basics in health and nutrition, socio-emotional and environmental factors that affect the status of children's health and ways of dealing with problems of health and safety among pupils at school. Similarly, teachers' roles in fostering preventive health concepts and helping young children begin to establish good habits, attitudes, and life-long responsibility for optimizing personal well-being

iv) **Inclusive practices in Education**: This course facilitates an effective development of teachers' skills for creating an inclusive classroom environment where all students, regardless of their background or abilities, feel valued and respected and design and implement inclusive support strategies for a variety of students.

v) **Classroom Action Research**: This course aims at equipping teachers with skills for investigating their teaching practices and classroom environments. It focuses on ways in which reflection informs professional actions and facilitates learning, growth, and development. Teachers will examine theoretical perspectives and research approaches that inform reflective practice and use of research to enhance teaching and student learning outcomes.

vi) **Communication Fundamentals for teachers:** This course further strengthens teachers' professional communication skills, enabling them to build positive relationships with students, colleagues, and parents, and to effectively communicate in diverse educational contexts. This course focuses on interpersonal communication in professional settings, examining factors that enhance or impede communication and exploring strategies for communicating more effectively with different audiences both in verbal and written formats.

vii) **Guidance and Counselling in Education:** This course equips teachers with knowledge and skills of developing various guidance and counselling strategies to support student learning and apply appropriate guidance and counselling techniques to solve diverse learners' problems. Teachers will demonstrate ability to analyse and use principles and functions of guidance and counselling to provide a safe learning environment in schools.

viii) **Instructional Leadership**: This course reminds teachers to consider the changing role of the instructional leader as it relates to supervision of the instructional program, impact on school improvement, and differentiated instruction. Teachers will develop skills, knowledge, and values needed to lead and manage schools effectively and to contribute to improving the delivery of education across the school

system by considering the diversity of school types and contexts. It will further provide professional leadership and management of the curriculum and therefore ensure that schools provide quality teaching, learning and resources for improved standards of achievement for all learners in diverse contexts.

ix) **Technology Integration in Education**: This course introduces application of educational technology to teachers. The course covers the learning principles and strategies for integrating technology into the teaching and learning process. The course will use a research-based approach to explore how educational technologies can be applied to enhance teachers' effectiveness and assist learners in reaching their learning goals. Teachers will develop strategies for evaluating new educational technologies as they emerge.

x) **Entrepreneurship in Education:** This course provides teachers with knowledge, skills, attitude and motivation in entrepreneurship including the nature of entrepreneurs, the role of entrepreneurship in society and the entrepreneurial process in a variety of contexts. The course explores issues surrounding new venture creation, the economics of the business, determination of resources needs and acquisition of resources, marketing requirements, deal structures and technology issues. Teachers will have an opportunity to engage in real entrepreneurial projects and activities in their contexts.

xi) **Environmental Education**: This course provides teachers with the knowledge and critical skills necessary to incorporate Environmental Education into their school practice. They will learn how to plan, develop and implement environmental activities and link them to a variety of curriculum subjects. The course will employ a project-based approach, enabling teachers to develop resources for infusing Environmental Education in academic, professional, and everyday lives.

xii) **Contemporary issues in Education**: This course aims to introduce teachers with the dynamic nature of education in the context of prevailing social, economic and cultural changes and helps them draw theoretical/ conceptual concepts related to the issues and their implication to educational practices. They will conduct analysis of local and global contemporary issues and how they affect education management and planning.

xiii) **Developing Numeracy and Literacy in Early Childhood Contex**t: This course engages teachers in a substantive exploration of the relationships between language, literacy, numeracy and children learning; drawing on theory, research and practice related to assessing and teaching children with diverse language and literacy backgrounds, and experiences in a variety of school contexts. This course will provide teachers with an opportunity to analyse issues about language, literacy, and numeracy education, with particular reference to the language, literacy, and numeracy demands of pre-primary and primary school curriculum and pedagogy. It draws on current research to identify likely areas of difficulty in language, literacy, and numeracy learning and discusses effective teaching strategies.

xiv) **Teaching Primary School Mathematics**: **Principles and Practices**: This course is designed to address the philosophies, goals and methods of instruction and assessment of Primary school mathematics in the current era where technology and

diverse learning needs are predominant. This course will provide opportunities for teachers to explore contemporary theories of learning mathematics, integrate digital tools into their teaching practices, and develop inclusive lesson plans. Teachers will also reflect on personal attitudes toward, and beliefs about, mathematics teaching and learning including underlying principles and explore the potential of teaching mathematics in an integrated and experiential manner through constructivist and problem-based learning approaches,

xv) **Teaching Primary School Science: Principles and Practices**: This course is designed to equip educators with the knowledge and skills necessary to effectively teach science to primary school learners in the 21st century. It investigates the theories and methods for teaching science and develops effective teaching skills with the emphasis on planning, implementing instruction, and assessment of student learning. The course explores contemporary pedagogical approaches, integration of technology, assessment strategies and the importance of creating an inclusive class environment for learning in primary school settings. Teachers will engage in hands-on learning activities, collaborative projects, and reflective practices aimed at enhancing their teaching methodologies and hence improving primary school learner engagement in science. Also, Teachers will reflect upon the importance of promoting positive attitudes towards learning science to make children's science learning meaningful, relevant and engaging.

xvi) **Teaching Primary School Geography and Environment:** Principles and Practices: This course is designed to equip teachers with innovative strategies and methodologies for teaching geography to primary school learners. Considering rapid changes in technology and emphasis on global citizenship, the course underlines the importance of integrating contemporary pedagogical approaches that foster critical thinking, spatial awareness, and environmental stewardship among young learners. Teachers will explore various innovative teaching methods and tools such as digital resources, interactive activities, and collaborative projects that engage students in meaningful geographical inquiry. The course goal is to create a dynamic learning environment where learners can develop a deep understanding of their local, national, regional and global contexts; enhance their basic knowledge on the principles governing environmental problems on a global scale; and develop an understanding of the individual's role in preserving and protecting the environment.

xvii) **Teaching Primary School Languages: Principles and Practices**: This course aims to equip teachers with the ability to demonstrate knowledge and understanding of current trends and issues in languages teaching and learning in primary schools. Specifically, to develop knowledge and understanding of research on how pupils learn languages, differentiated teaching strategies to cater for diverse learners in primary schools, including relevant and stimulating concepts and topics; language, culture and intercultural components; and appropriate assessment, feedback and reporting.

7.2 Master Courses

i) **Teaching and Learning in Diverse Classrooms**: This course aims to support the teaching and learning of teachers and will expose them to the challenges, issues, and experiences faced by students from different backgrounds. Teachers will develop ability to design and use different frameworks for inclusive course design to evaluate and plan for inclusive teaching; describe the salience of social identities in teaching and learning; identify evidence-based pedagogical strategies proven to support student-centred learning and evaluate their curriculum and subjects to identify patterns of exclusion and inclusion and discipline-specific approaches to thinking about diversity, equity, and inclusion.

ii) **Adult Learning**: **Theories and Practice:** This course provides teachers with ability to critically analyze theories of learning and teaching at the adult levels, grasp the diversity of development and learning processes among adults and recognize and demonstrate the relationship between theory and personal perspective in academic work development and the implication of these for facilitating adult learning. This course offers a basic framework to consider when planning and delivering instructions to adult learners. Teachers will demonstrate understanding of Principles, theories and practices based on long-standing research and data with regard to effective ways to train adults in different learning contexts.

iii) **Instructional Design and Delivery**: This course will focus on the systematic processes of translating principles of learning and instruction into plans for instructional materials and activities. Teachers will be equipped with knowledge and skills for assessing learning needs, designing the learning process, creating rich learning experiences, developing learning materials and evaluating the effectiveness of a teaching programme or training development course. The use of ICT and simulations will enhance the instructional design process.

iv) **Educational Policy and Instructional management**: The course aims to develop teachers' ability to analyse the effect of educational policies on education and practice and their roles in informing, shaping and implementing educational instructional interventions. The course uses a backward-mapping approach to examine how education policies affect the learning environments of schools and classrooms, teacher's quality and pedagogy, and ultimately student learning in schools. The course is intended to help teachers develop and articulate various theories of action for school improvement and the management of instruction that can be useful in their work as education policy makers or analysts, academic researchers, and practitioners in schools.

v) **Teaching and Learning Methods**: This is a specialized course for each category of teachers (Pre-Primary, Primary and Special Education). It shall be learner-cantered, designed to engage student teachers in the process of developing capacity required for them to effectively implement respective syllabi. This course shall involve in-class learning, simulated teaching, and practical teaching cycles at Diploma teacher education colleges. The courses shall focus on helping teachers to:

a) Analyse the respective Diploma syllabi for (Primary, Pre-primary and Special Education)

b) Analyse the teaching and learning methods for Teacher educators

c) Identify and use resources that are culturally appropriate and inclusive for teaching and learning at Diploma Teacher Colleges

d) Improvise and apply technology and other assistive devices in teaching and learning different subjects at each Diploma syllabus

e) Design teaching and learning activities to cater for a diversity of learners' needs and abilities;

f) Identify and design a range of classroom assessment methods and tools including rubrics and provide feedback to students on achievement of learning outcomes in different subjects at each category

g) Simulate teaching of mathematics to other teachers and course lecturers.

h) Teach different subjects in their respective Diploma Syllabus using appropriate pedagogy models in teacher colleges to support teacher's development of competences as per 21st century skill requirement.

vi) **Educational Research**: The purpose of this course is to introduce empirical research and a variety of research approaches common to the field of education. Teachers will explore a variety of sources for educational research, determine ways educational research and how can inform and improve teaching practice.

vii) **Curriculum Development and Innovation** This course introduces the teachers to procedures involved in curriculum development, innovation and evaluation. It considers approaches to learning and teaching that benefit from the use of technologies in advancing the understanding and appreciation of knowledge as well as innovative practices. Some curriculum design models shall be considered and their implication for innovative approaches to teaching, learning and assessment practices.

viii) **Dissertation**: This course will help teachers to develop knowledge and research skills applicable to educational contexts particularly their respective specializations. The course will facilitate the development of teachers' analytical skills, cultivate the understanding of problems, study design, methodology, learn effective research organizational skills along with analysis of results, interpretation of results, discussion and report writing.

Table 5. Course Mapping for Master of Primary Teacher Education

	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6
Semester 1	Philosophy of Education 12CP	Child Health and Care 10CP	Inclusive Practices in Education 10CP	Instructional Design and Delivery 12CP	Technology Integration in Education 12CP	Elective
Semester 2	Pedagogy of Teacher Education 12CP	Communicatio n Fundamentals for Teachers 10CP	Education Assessment in Primary Education 12CP	Guidance and Counseling in Education 12CP	Developing Numeracy and Literacy in Early Childhood settings 14CP	Elective
Semester 3	Environmental Education 12CP	Teaching Primary Science: Principles and Practices 14CP	Teaching Primary Mathematics: Principles and Practices 14CP	Teaching Primary Social Studies: Principles and Practices 14CP	Teaching Languages: Principles and Practices 14CP	Elective
Semester 4	Instructional Leadership 10CP	Contemporary Issues in Education 12CP	Classroom Action Research 12CP	Entrepre-neurship in Education 12CP	Teacher Professionalism and Ethics 10CP	Elective
Semester 5	Teaching and Learning in Diverse Classrooms 13CP	Adult Learning Theories and Practices 15CP	Teaching Methods 40CP	Education Policy and Instructional Management 17CP	Curriculum Development and Innovation 17CP	Elective
Semester 6	Research Methods in Education 18CP	Dissertation 60CP				Elective

Table 6. Learning Matrix of the Master of Primary Teacher Education

SN	Course Name	Lecture Hours	Tutorial/ Seminars	Assignment Hrs.	Independent Study and Research Hrs.	Practical Hrs.	Total Hours	Total Credits
Degree Courses								
1	Philosophy of Education	30	15	30	30	15	**120**	**12**
2	Pedagogy of Teacher Education	30	15	30	30	15	**120**	**12**
3	Teacher Professionalism and Ethics	30	15	20	20	15	**100**	**10**
4	Education Assessment in Primary School Education	30	15	30	30	15	**120**	**12**
5	Child health and care	30	15	20	20	15	**100**	**10**
6	Inclusive practices in Education	30	15	20	20	15	**100**	**10**
7	Classroom Action Research	30	15	30	30	15	**120**	**12**
8	Communication Fundamentals for Teachers	30	15	20	20	15	**100**	**10**
9	Guidance and Counselling in Education	30	15	30	30	15	**120**	**12**
10	Instructional Leadership	30	15	20	20	15	**100**	**10**
11	Technology Integration in Education	30	15	30	30	15	**120**	**12**
12	Environment Education	30	15	30	30	15	**120**	**12**
13	Instructional Design and delivery	30	15	30	30	15	**120**	**12**
14	Contemporary issues in Education	30	15	30	30	15	**120**	**12**
15	Entrepreneurship in Education	30	15	30	30	15	**120**	**12**
16	Teaching Primary Social Studies: Principles and Practices	30	20	30	30	30	**140**	**14**
17	Developing Numeracy in Literacy in Early Childhood Settings	30	20	30	30	30	**140**	**14**
18	Teaching Primary Science Principles and Practices	30	20	30	30	30	**140**	**14**
19	Teaching Primary Mathematics Principles and Practices	30	20	30	30	30	**140**	**14**
20	Teaching Language Principles and Practices	30	20	30	30	30	**140**	**14**
Total HRS/Credits		600	325	550	550	375	**2400**	**240**
Master Degree Courses								
1	Teaching and Learning in Diverse Classrooms	40	10	30	30	20	**130**	**13**

SN	Course Name	Lecture Hours	Tutorial/ Seminars	Assignment Hrs.	Independent Study and Research Hrs.	Practical Hrs.	Total Hours	Total Credits
2	Adult Learning Theories and Practices	50	20	30	30	20	**150**	**15**
3	Teaching Methods	40	60	45	85	170	**400**	**40**
	Pre-teaching activities	25	15	0	0	0	**40**	**4**
	Immersive simulated teaching	15	15	0	0	30	**60**	**6**
	Cycle 1- Observation and Co-Teaching	0	15	0	15	30	**60**	**6**
	Cycle 2 - Lesson Planning and Implementation	0	15	15	30	40	**100**	**10**
	Cycle 3-Lesson Planning and Independent Teaching	0	0	30	40	70	**140**	**14**
4	Education Policy and Instructional Management	60	30	30	30	20	**170**	**17**
5	Curriculum Development and Innovation	60	30	30	30	20	**170**	**17**
6	Research Methods in Education	60	30	30	30	30	**180**	**18**
7	Dissertation					600	**600**	**60**
Total HRS/Credits		**310**	**180**	**190**	**240**	**880**	**1800**	**180**

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