YEAR 2

SEMESTER 1

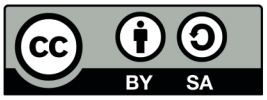
Four-Year B.Ed. Course Manual

ICT EDUCATIONAL AND INSTRUCTIONAL TECHNOLOGIES

GHANA TERTIARY EDUCATION COMMISSION

NATIONAL TEACHING COUNCIL
NTC
Building Confidence, Raising Teaching Standards

The Government of Ghana



FOREWORD

These Initial Teacher Education course manuals were developed by a team consisting of members from Colleges of Education and four universities namely the University of Ghana, Kwame Nkrumah University of Science and Technology, University of Education, Winneba, and University for Development Studies. This team was originally constituted by the National Council for Tertiary Education (now the Ghana Tertiary Education Commission) in 2019 to support the delivery of the new B.Ed. curriculum with assistance from T-TEL and UK Aid. The revision, finalization and printing of these manuals took place in 2021 with support from T-TEL and Mastercard Foundation.

The course manuals have been produced for use as general guides for the delivery of the new four-year B.Ed. curriculum in Colleges of Education in collaboration with their affiliated universities. They are designed to support student teachers, tutors and lecturers in delivering a complete B.Ed. course for training student teachers which meet the requirements of the National Teachers' Standards, enabling them to teach effectively in basic schools.

The first section of the manuals is focused on the course information and vision for the B.Ed. curriculum. The second section presents the course details, goal for the subject or learning area, course description, key contextual factors as well as core and transferable skills and cross-cutting issues, including equity and inclusion. The third section is a list of course learning outcomes and their related learning indicators. The fourth section presents the course content which is broken down into units for each week, the topic and sub-strands and their related teaching and learning activities to achieve the learning outcomes and the teaching and learning strategies. This is followed by course assessment components in section five. Each manual contains a list of required reading and references as well as teaching and learning resources. The final section presents course related professional development for tutors and lecturers to be able to use each section of the manual.

Field instructions to guide Supported Teaching in School are integrated into the course manuals to provide the student teacher with guidance in developing teaching throughout the entire period of study to be able to meet the requirements of the National Teachers' Standards (NTS) and the National Teacher Education Curriculum Framework (NTECF). To ensure maximum benefit the course manuals should be used in addition to other resources such as the NTS, NTCEF, National Teacher Education & Assessment Policy and the National Teacher Education Gender Equality and Social Inclusion (GESI) Strategy and Action Plan. This will help to ensure that student teachers learning is integrated within the wider teacher education policy framework.

Professor Mohammed Salifu Director General, Ghana Tertiary Education Commission

ACKNOWLEDGEMENTS

The course manuals were developed through the collaborative efforts of a team of individuals from Colleges of Education, University of Ghana, Kwame Nkrumah University of Science and Technology, University of Education, Winneba and University for Development Studies. They were produced in association with the Ghana Tertiary Education Commission of the Ministry of Education, Ghana.

A participatory team approach was used to produce these sets of resources for tutors/lecturers, mentors and student teachers. We are grateful to the specialists who contributed their knowledge and expertise.

Special thanks to Professor Jophus Anamuah-Mensah - T-TEL Key Advisor, Dr. Eric Daniel Ananga T-TEL Key Advisor for Curriculum reform and Beatrice Noble-Rogers who provided key editorial, review and content input and facilitated the process of drafting and finalising the course manual.

Patricia Appiah-Boateng and Gameli Samuel Hahomene, served as typesetting and formatting coordinators and designed and produced the illustrations, tables and other graphics which appear in the pages. They spent time and effort designing and redesigning the graphic layout and producing the camera-ready copies resulting in a set of materials that are easy to use, read and reference.

Thanks also goes to all T-Tel staff members who worked to support production of these course manuals, particularly Beryl Opong-Agyei and Gideon Okai. Their frankness and co-operative attitude complimented the team is approach used to produce these manual.

We are indebted to the Ministry of Education and the Ghana Tertiary Education Commission (GTEC) for the general support and specific helpful advice provided during production of the course manuals. Recognition and thanks must go to Chief Technical Advisor for T-TEL and Policy Advisor to the National Education Reform Secretariat, Akwasi Addae-Boahene, Prof. Mohammed Salifu, the Director General of GTEC and Mr. Jerry Sarfo the coordinator for the colleges of education, who in diverse ways supported during the course manual writing workshops.

In addition to all the staff who participated visibly in the development of these materials we would like to acknowledge all those people from the many colleges of education and universities in which we have worked and who have directly or indirectly, shared their views on the curriculum with us.

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INTRODUCTION TO COURSE MANUALS

Welcome to this B.Ed. Course manual.

Following the accreditation of the B.Ed. by the national accreditation Board with its recognition as a world class teacher education curriculum, the decision was taken to support effective implementation through the development of course manuals. the course manuals provide tutors and lecturers with the materials necessary to support teaching each of the B.Ed. courses. The manuals adhere directly to, and emphasise, the principles and standards set out in the NTS, NTECF and in the B.Ed. and will help ensure operationalising the Government's teacher education reform Policy.

The manuals serve the following purposes:

- they are the key educational agreements between the training institution and the student teachers. In this way student teachers know what the expectations are for them and for the training they will receive.
- they lay out the course outcomes, content, strategies, and assessment, thereby providing direction to and consistency in training and B.Ed. implementation among tutors across the country.
- they are explicit documents that provide other institutions with information on which to base transfer/ articulation decisions.

Specifically, they also:

- support coherent lesson planning and teaching which will enable student teachers to achieve the NTS and become good teachers who ensure all pupils' learning whilst offering tutors the flexibility for adaptation for local needs and contexts.
- Provide a lesson by lesson overview of the course, building on and developing the material in the course specifications.
- Inform tutors, student teachers and others working with student teachers about:
    1. What is to be taught and why.
    2. how it can be taught.
    3. how it should be assessed.
- Provide opportunities for student teachers to develop and apply knowledge during supported teaching in school, creating a strong bond between learning in school and in the training institution.
- Reflect the stage of student teacher development, set out in the model for progress across the four years of the B.Ed.
- Can be used as self-study tools by student teachers.
- Ensure that all information necessary to inform teacher training is in one place (serves as reference document).
- The manuals are the basis of the codes and university professional development sessions to ensure Principals, tutors, lecturers and heads of department are fully familiar with the details of: courses, outcomes, content, approaches, assessments and lessons.

Who are course manuals for:

- College of Education Tutors
- Teacher Education University Lecturers
- Student Teachers
- Mentors and Lead Mentors
- All Those with An Interested In Teacher Education.

USING THIS MANUAL

Writers of the manuals engaged widely with colleagues in each subject area at each stage of development. Besides, writers envisaged themselves in varied contexts as they wrote, to suggest methodologies and strategies for teaching the strands which would ensure student teachers are enabled to achieve the learning outcomes. In view of our commitment to creativity, problem solving, collaboration and to lifelong learning, we expect that individual tutors will "own" their manuals and become user-developers. lessons in the manuals will be strands for weekly Pd meetings where tutors/lecturers will situate the lessons in the contexts of their colleges and their student teachers, to maximize the benefits.

It is also expected that tutors will model the best pedagogic practices for student teachers. Key among such practices is the communication of the importance of having a personal teaching philosophy. We expect that tutors and lecturers will explicitly communicate their personal teaching philosophies to their student teachers during the first meeting of every course. in preparation for this, we suggest you set out your personal teaching philosophy and how it will be demonstrated in your teaching using, or adapting, the sample sentence introductions below.

My teaching philosophy is ……..

In view of this philosophy, I will facilitate this course by/through ……

Course Information

Title Page

The vision for the New Four-Year B.Ed. Curriculum

To transform initial teacher education and train highly qualified, motivated new teachers who are effective, engaging and fully prepared to teach the basic school curriculum and so improve the learning outcomes and life chances of all learners they teach as set out in the National Teachers' Standards. to instil in new teachers the Nation's core values of honesty, integrity, creativity and responsible citizenship and to achieve inclusive, equitable, high quality education for all learners

Course Details

Course name	**Educational and Instructional Technologies**						
Pre-requisite	Student teachers have taken the course **'Information and Communications Technology'** which exposed them to Computer-based systems and their applications, implications and issues surrounding their use. With a background information in the use of computers and serves to meet their general technology/computer literacy requirement						
Course Level	**200**	**Course Code**		**Credit Value**	**3**	**Semester**	**1**

Table of contents (To be provided)

Goal for the Subject or Learning Area

This course is designed to cover the theories, frameworks, and practices of computer – and web-based applications in various instructional settings, paradigms, and research regarding the use of technologies in teaching. It also aims to help the student teachers refine, redefine, and reshape their perspectives and views of technology as they relate to the society, teaching, learning, and training.

Key contextual factors

There is a high mobile communication device ownership in the Ghanaian society. Most students and teachers have interest and experience in using these devices for social and personal interactions. However, the integration of ICT into teaching and learning is low in Ghanaian schools. Ghanaian schools can be categorized as low technology-rich learning environment particularly in the public schools.

The following affect effective teaching and account for this low integration of ICT in teaching and learning:

- There is an intra-national digital divide (Rich/Poor, Male/Female, Urban/Rural, SEN/Typical)
- Generally, there is low internet connectivity especially in the rural communities.
- Most schools lack computing facilities.
- Some schools do not have electricity supply
- Existing facilities do not favour people with disability
- Student teachers will be prepared with technology integration strategies in the classroom as well as the theories thereof.

Course Description

This course is designed to deepen student teachers' awareness of technology concepts and provide experiences that facilitate individual thinking. The course also seeks to introduce student teachers to a range of approaches used to integrate ICT tools across the curriculum; focusing on classrooms that integrate technology into teaching and learning, and research. Student teachers will be equipped with knowledge and skills required for effective integration of educational and instructional technologies in teaching and learning. Interactive discussions will be used to critically examine the Current Technological trends shaping education. Interactive multimedia presentations and video analysis will be used to evaluate the Cognitive Science and Research-Based attributes of effective technology enabled learning environments. These strategies must respond to inclusivity and equity. Assessment will be done through, observation, Video Analysis, individual and group project to synthesize knowledge and concepts. Assessment will also evaluate student teachers' ability to use self-help features to learn use of hardware and software ***(National Teachers' Standard: 1a, 1b, 2c, 2e, 3a, 3b, 3c, 3d, 3e, 3h, 3i, 3k, 3n, 3p/ NTECF: Pillar 1, 2 & 3, crosscutting issues; Core skills, Professional values and attitudes, Assessment)***

Core and transferable skills and cross cutting issues, including equity and inclusion

Digital literacy of student teachers will be enhanced by giving them opportunities to surf and present information across units using various digital tools

Critical thinking is developed in student teachers when they Select and use appropriate tools and technology resources to accomplish a variety of tasks. (CLO 5).

Collaboration is fostered through assigning group projects and presentation of various topics across units and Participation in collaborative problem-solving activities(CLO 3)

Communicative skills of student teachers would be enhanced,present a project report on compliance with acceptable use policies and other guidelines (CLO 3)

Personal development & Enquiry skills in action research would be fostered acquiring skills for a variety of technologies for solving problems (CLO 2, CLO 4).

Respect for diversity and Individual differences would be engendered in student teachers by applying appropriate interventions, examining and reflecting their usefulness (CLO 1, CLO 2, CLO 5)
Honesty and Accountabilitywould be fostered bystating the regulations regarding fair use as well as, presentation of a project report on compliance with acceptable use policies and other guidelines.(CLO 5)

Course Learning Outcomes	Learning Indicators
Demonstrate proficiency in the use of educational/ instructional technology ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***	• Describe how technology impacts learning • Explore software and hardware to illustrate them as an educational / instructional technology • Describe compatibility issues between types of technology • Use self-help features to learn the use of software
Demonstrate knowledge of ethical, cultural, and societal issues related to technology ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1, 3, & 4***	• Explain the current changes in information technologies • List policy documents that govern technology in education • Describe career opportunities in technology related systems
Demonstrate knowledge and Practice responsible use of technology systems, information, and software.***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&3***	• State the regulations regarding fair use. • Present a project report on compliance with acceptable use policies and other guidelines.
Demonstrate knowledge and skills in the use of technology to locate, evaluate, and collect information from a variety of sources ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&3***	• Use spreadsheet to evaluate information • Use internet and other electronic resources to locate information in real time
Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions.***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&3***	• Employ technology in development strategies for solving problems • Use variety of technologies for solving problems • Use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools. • Participate in collaborative problem-solving activities • Select and use appropriate tools and technology resources to accomplish a variety of tasks. • Plan and implement lessons and strategies that integrate technology to meet the diverse needs of learners in a variety of educational settings

Course Content

Unit/ Week	Topic	Sub-topic (if any)	Teaching and learning activity to achieve the learning outcomes
1	Current Technological trends shaping education I	1.1 Introduction to the Course Manual 1.2 Current Trends Flipped learning/ Blended Learning Remote learning	1. Seminars (Talk for Learning)& interactive discussions (Games) to critically examine *Current Technological trends shaping education*, field trips, interactive multimedia presentations, video analysis (eg. From YouTube) to evaluate the *Current Technological trends shaping education* in educational institutions. These strategies must respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia). 2. Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling) to stimulate and involve students when they interact with other students or to teach.***PD Guide Themes 1,2,3,4,5 & 6***
2	Current Technological trends shaping education II	2.1 Gamification 2.2 Mind Mapping 2.3 Digital Textbooks 2.4 Big Data 2.5 Social Media	1. Seminars (Talk for Learning)& interactive discussions (Games) to critically examine *Current Technological trends shaping education*, field trips, interactive multimedia presentations, video analysis (eg. From YouTube) to evaluate the *Current Technological trends shaping education* in educational institutions. 2. Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling) to stimulate and involve students when they interact with other students or to teach. ***PD Guide Themes 1,2,3,4,5 & 6***

3	Classroom technology integration I	2.1 Why integrate technology	1. Inquiry-based learning (Questioning), seminars (Talk for Learning) interactive discussions (Games), interactive multimedia presentations to examine the Practical Classroom realities technology integration in Education, field trips to observe the practices, tutorial and practical sessions, video analysis eg YouTube to discuss Practical Classroom realities technology integration in education. 2. Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling) to stimulate and involve students when they interact with other students or to teach. ***PD Guide Themes 1,2,3,4,5 & 6***
4	Classroom technology integration II	1.1 Integrate technology in the classroom 1.2 Ways to integrate	1 Inquiry-based learning (Questioning),seminars (Talk for Learning)interactivediscussions (Games), interactive multimediapresentations to examine the PracticalClassroom realities technology integration inEducation, field trips to observe the practices,tutorial and practical sessions, video analysiseg YouTube to discuss Practical Classroomrealities technology integration in education. 2 These strategies must respond to inclusivityand equity (ie ICT as a tool for expandinglearning to diverse learners eg. People withvisual impairment, dyslexia, dysgraphia).Identify the instances when personal,cultural, and institutionalized discriminationare creating and/ or sustaining disadvantagesfor some student-teachers. 3 Using Creative Approaches (such as, games,storytelling, role paly, songs and modelling)to stimulate and involve students when theyinteract with other students or to teach. ***PD Guide Themes 1,2,3,4,5 & 6***
5	Classroom technology integration III	5.1 Lesson plan that integrate technology	1 Inquiry-based learning (Questioning),seminars (Talk for Learning) interactive 2 discussions (Games), interactive multimediapresentations to examine the PracticalClassroom realities technology integration inEducation, field trips to observe the practices,tutorial and practical sessions, video analysiseg YouTube to discuss Practical Classroomrealities technology integration in education. 3 Using Creative Approaches (such as, games,storytelling, role paly, songs and modelling)to stimulate and involve students when theyinteract with other students or to teach.***PD Guide Themes 1,2,3,4,5 & 6***
6	Classroom technology integration IV	6.1 Integrating technology into teaching	1 Inquiry-based learning (Questioning),seminars (Talk for Learning) interactive 2 discussions (Games), interactive multimediapresentations to examine the PracticalClassroom realities technology integration inEducation, field trips to observe the practices,tutorial and practical sessions, video analysiseg YouTube to discuss Practical Classroomrealities technology integration in education. 3 These strategies must respond to inclusivityand equity (ie ICT as a tool for expandinglearning to diverse learners eg. People withvisual impairment, dyslexia, dysgraphia).Identify the instances when personal,cultural, and institutionalized discriminationare creating and/ or sustaining disadvantagesfor some student-teachers. 4 Using Creative Approaches (such as, games,storytelling,

			role paly, songs and modelling)to stimulate and involve students when theyinteract with other students or to teach.***PD Guide Themes 1,2,3,4,5 & 6***
7	Cognitive Science and Research-Based attributes of effective learning environments I	7.1 Learners and Learning 7.1 Development and Learning competencies 1.1 transfer of Learning 1.2 Competent and Expert performance	1 Project- and problem- Based (Group Work),and inquiry-based learning (Questioning) tolllustrate Cognitive Science and Research-Based attributes of effective learningenvironments, seminars (Talk for Learning), interactive discussions (Games), interactivemultimedia presentations, tutorial andpractical sessions, video analysis egYouTube to discuss the Cognitive Scienceand Research-Based attributes of effectivelearning environments. 2 Using Creative Approaches (such as, games,storytelling, role paly, songs and modelling)to stimulate and involve students when theyinteract with other studentstoteachstudent teachers to create a wiki ofobservation of schools visit. ***PD Guide Themes 1,2,3,4,5 & 6***
8	Cognitive Science and Research-Based attributes of effective learning environments II	1.1 Teachers and Teaching 1.2 Teaching for In-Depth Learning 1.3 Expert Teachers	1 Project- and problem- Based (Group Work),and inquiry-based learning (Questioning) tolllustrate Cognitive Science and Research-Based attributes of effective learningenvironments, seminars (Talk for Learning),interactive discussions (Games), interactivemultimedia presentations, tutorial andpractical sessions, video analysis egYouTube to discuss the Cognitive Scienceand Research-Based attributes of effectivelearning environments. 2 Using Creative Approaches (such as, games,storytelling, role paly, songs and modelling)to stimulate and involve students when theyinteract with other studentstoteachstudent teachers to create a wiki ofobservation of schools visit.***PD Guide Themes 1,2,3,4,5 & 6***
9	Cognitive Science and Research-Based attributes of effective learning environments III	1.1 Learning Environments 1.2 Tools of Technology 1.3 Assessment to support Learning 1.4 Learning and Connections to Community	1 Project- and problem- Based (Group Work),and inquiry-based learning (Questioning) tolllustrate Cognitive Science and Research-Based attributes of effective learningenvironments, seminars (Talk for Learning),interactive discussions (Games), interactivemultimedia presentations, tutorial andpractical sessions, video analysis egYouTube to discuss the Cognitive Scienceand Research-Based attributes of effectivelearning environments. 2 Using Creative Approaches (such as, games,storytelling, role paly, songs and modelling)to stimulate and involve students when theyinteract with other studentstoteachstudent teachers to create a wiki ofobservation of schools visit.***PD Guide Themes 1,2,3,4,5 & 6***
10	Equity in Using Technology in the Classroom I	10.1 Issues relating to Equity: Standard Based Reforms Inclusion, Cultural and Linguistic Diversity 10.2 Instructional approaches that support Inclusion 10.3 Differentiated Instruction	1 Project- and problem- Based (Group Work) to apply Equity of Using Technology in the Classroom as it relates to socioeconomic, cultural and special needs differences in the classroom, and inquiry-based learning (Questioning), seminars (Talk for Learning) to , interactive discussions (Games), interactive multimedia presentations, tutorial and practical sessions, video analysis eg YouTube to identify and discuss and practice Equity of Using Technology in the Classroom as it relates to socioeconomic,cultural and special needs differences in the classroom. 2 Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or

		10.4 Universal Design for Learning 10.5 Multicultural education 10.6 Sheltered Instruction	sustaining disadvantages for some student-teachers. Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling) to stimulate and involve students when theyinteract with other students to teach.***PD Guide Themes 1,2,3,4,5 & 6***
11	Equity in Using Technology in the Classroom II	11.1 Available methods Methods of Instruction, Materials of Instruction, Environment of Instruction, Content of Instruction, Collaboration for Instruction, Assessment in Instruction	1 Project- and problem- Based (Group Work) to apply Equity of Using Technology in the Classroom as it relates to socioeconomic, cultural and special needs differences in the classroom, and inquiry-based learning (Questioning), seminars (Talk for Learning) to , interactive discussions (Games), interactive multimedia presentations, tutorial and practical sessions, video analysis eg YouTube to identify and discuss and practice Equity of Using Technology in the Classroom as it relates to socioeconomic,cultural and special needs differences in the classroom. 2 Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling) to stimulate and involve students when they 3 Interact with other students to teach.***PD Guide Themes 1,2,3,4,5 & 6***
12	Issues in Digital Technology in education	12.1 Impact on Education 12.2 Issues and Implications 12.3 The Future	1 Project- and problem- Based learning andpractical sessions (Individual and GroupWork) to create educational artefacts like e-portfolios,seminars (Talk for Learning), andinteractive multimedia presentations, videoanalysiseg YouTube to discuss projectartefacts.

Teaching and Learning Strategies

- Project- and problem- Based learning and practical sessions
- Individual and group presentations
- Concept cartoons and concept maps
- Cooperative learning
- Think-pair-share
- Talk for learning approaches- always, sometimes, never true, convince yourself, convince a friend; pyramid discussion etc

Course Assessment Components

Component 1: Portfolio Assessment: (30% overall score)

- Selected items of students work (3 of them – 10% each)- 30%
- Midterm Assessment – 20%
- Reflective Journal – 40%
- Organisation of subject portfolio – 10% (how it is presented/organized)

Summary of Assessment Method:

Create e-portfolios to contain

a. Artefacts from practical work
b. Reflective notes of their observation during school visit relating to the use and application of educational and instructional technologies.
c. Presentation of Video Analysis, individual and group project to synthesize and evaluate student teachers' ability to use self-help features to learn use of hardware and software. Eg. Present a project report on compliance with acceptable use policies and other guidelines.
d. Tests/quizzes and class exercises to examine student teachers' knowledge of current changes in information technologies. Eg. Describe how technology impacts learning, explore at least two (2) software and hardware and develop one (1) to illustrate educational / instructional technology, Describe three compatibility issues between types of technology
e. One (1) test/ Assignment/group work/quiz/class exercise to evaluate their understanding of multimedia authoring concepts

Weighting: 30%

Assesses Learning Outcomes:
CLO3, **CLO4**, **CLO5**
NTS: 1a, 1b, 1d, 2c, 2e, 3b, 3c, 3i/NTECF: Pillar 1& 3

Component 2: Subject Project (30% overall semester score)

- Introduction a clear statement of aim and purpose of the project – 10%
- Methodology: what the student teacher has done and why to achieve the purpose of the project – 20%
- Substantive or main section – 40%
- Conclusion – 30%

Summary of Assessment Method:

a. Project-/problem-/inquiry-based assessment: Identify, investigate, propose and create solutions using the educational / instructional technologies (student Teachers) have been introduced to. E.g. explore the potential of the internet as a means of personal learning and the respectful exchange of ideas and production, employ technology in development strategies for solving problems.

Weighting: 30%
Assesses Learning Outcomes:
CLO3, **CLO4**, **CLO5**
NTS: 1a, 1b, 1d, 2c, 2e, 3b, 3c, 3h, 3i /NTECF: Pillar 1& 3

Component 3: End of Semester Examination – 40% overall
Summary of Assessment Method:
A combination of any of these assessment modes;

a. Written examination to evaluate student teachers' knowledge of the Essential concepts of Educational and Instructional technologies. Eg. Mention two (2) policy documents that govern technology, State two (2) current changes in information technologies, List five (5) career opportunities in technology related systems.

Weighting: 40 %
Assesses Learning Outcomes:
CLO1, CLO2, CLO3
NTS: 1a, 1b, 1d, 2c, 2e, 3b, 3c, 3h , 3i
1. a) Critically and collectively reflects to improve teaching and learning.
1. b) Improves personal and professional development through lifelong learning andContinuous Professional Development.
1. d) Is guided by legal and ethical teacher codes of conduct in his or herdevelopment as a professional teacher.

2.c) Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in.
2.e) Understands how children develop and learn in diverse contexts and applies this in his or her teaching.
3.b) Carries out small-scale action research to improve practice.
3.c) Creates a safe, encouraging learning environment.
3.h) Sets meaningful tasks that encourages learner collaboration and leads to purposeful learning.
3.i) Explains concepts clearly using examples familiar to students.

Required Reading and Reference List

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Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited.
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Additional Reading List

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Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect.
Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth.
Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER

Teaching and Learning resources

- Smartphones
- Laptops
- Desktop computers
- Tablets
- TV and Radio
- Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy,

- TESSA)
- The iBox (CENDLOS)
- Productivity tools
- Subject based application software
- Instructional Laboratories (with multimedia equipment and smartboards)
- Google Classroom

Course related professional development for tutors/ lecturers

- Development of Concept Maps/ Concept cartoons Charts/ technical/action research report writing.
- Appreciating the place of Cross cutting issues in the CLOs and Teaching -Learning Activities/ Assessment component requirement for active learning/ model teaching to reflect the desired PCK students – teachers requires to learn for teaching.

Lesson 1

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson	Current Technological trends shaping education I				Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to current e learning modes with further explanation of current changes in information technologies. Student teachers would be able to describe career opportunities in technology related systems. This first lesson introduces student teachers to the course learning outcomes and the 3 assessment components of the course.					
Previous student teacher knowledge, prior learning (assumed)	Student teachers have taken the course **'Information and Communications Technology'** which exposed them to Computer-based systems and their applications, implications and issues surrounding their use. With a background information in the use of computers and serves to meet their general technology/computer literacy requirement					
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of current technological trends shaping education.					
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-Face [√]**	**Practical work [√]**	**Work Based Leaning [ ]**	**Seminars [√]**	**Independent Study [ ]**	**e-learning opportunities [√]**	**Practicum [ ]**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-Face:** lecturette, discussions and other talk for learning approaches should be employed **Practical Activity:** Individual and group activities involving surfing the internet for current technological trends shaping education. **E-learning opportunities:** information and other related material would be gleaned from the internet using their phones and other digital devices. **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.					
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	**Student teachers will:** Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***					
• **Learning Outcomes for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**	
	Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• Explain the technology trends in e-learning • Explain remote, blended and flipped learning • Distinguish between flipped and blended learning		• These strategies will respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia). • Identify the instances when personal, cultural,	

				and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers
Topic Title: Current Technological Trends shaping education I	**Sub-topic**	**Time and stage**	**Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.**	
	• **Introduction to Course Manual**	**30 minutes**	**Teaching Activities:** **Face-to-face:** **Tutor discusses the course manual with student teachers through questioning after making student teachers aware of the transition from Year 2 semester 1 courses and later spells out some of the expectations of the course to them.** **Some of the expectations are as follows:** **That student teachers will be able to;** • Describe how technology impacts learning • Explore software and hardware to illustrate them as an educational / instructional technology • Describe compatibility issues between types of technology Use self-help features to learn the use of software among others.	**Student Activity** **Face-to-Face** **Student teachers answer tutor's questions to be abreast with the expectations of the course, which includes modes of assessment and the week by week activities**
	• **Introduction**	**20 minutes**	**Face-to-face** **Tutor through questioning ask student teachers to mention some of the trends on technology in the 21st century**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	• **Current Trends**	**30minutes**	**Face-to-face:** Tutor-led discussion on current Technological trends shaping education. Using Creative	**Face-to-Face & e-learning** Student teachers surf the internet with their mobile phones for relevant information on current Technological trends shaping education. Student teachers

			Approaches (such as, games, storytelling, role paly, songs and modelling) PD Guide Theme 1. Eg. What are the current trends shaping technology **https://www.youtube.com/watch?v=Y7OCKDX3ylg**	report their findings through small group presentations PD Guide Theme 4. Eg. What are the current trends shaping technology
	Flipped learning/ Blended Learning	**60 min**	**Face -to-Face & Seminar** Shows student teachers short videos on Flipped learning/ Blended learning. Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling). PD Guide Theme 1. Eg. **1.** Is flipped learning blended learning? **ps://www.youtube.com/watch?v=paQCE58334M**	**Face-to- Face & Seminar** Student teachers watch videos, make notes and do group presentations in class. Eg. 1. Is flipped learning blended learning?
	Remote learning	**30 min**	**Practical activity** Guides student teachers to discuss Remote learning and its importance. Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling)PD Guide Theme 1 Eg. 1. What is the difference between Remote Learning and Classroom (Traditional Classroom) learning? 2. Merits and Demerits of Remote Learning **https://www.youtube.com/watch?v=lburieqK9WU**	**Practical activity** Student teachers exhibit and discuss Remote learning and make notes and do group presentations in class. Eg. 1. What is the difference between Remote Learning and Classroom (Traditional Classroom) learning? **2.** Merits and Demerits of Remote Learning
	Lesson Closure	**10 Minutes**	Guide student teachers to recap their discussion and the points identified in their discussions.	Student teachers recap the ideas/concepts learnt in the lesson

Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**In-lesson Assessment (Assessment of)** A combination of any of these assessment modes (Test/Assignment to go into Student teacher's portfolio); • Tests/quizzes and class exercises to examine student teachers' knowledge of current changes in information technologies. Eg. Describe how technology impacts learning, explore at least two (2) software and hardware and develop one (1) to illustrate educational / instructional technology, Describe three compatibility issues between types of technology • Assignments, group work to analyse and evaluate the need for laws and policies to govern technology. Eg. Mention two (2) policy documents that govern technology, State two (2) current changes in information technologies, List five (5) career opportunities in technology related systems. **Assesses Learning Outcomes:** **CLO1, CLO2, CLO3.NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • xi. Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on Current Technological trends shaping education • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 2

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson	Current Technological Trends shaping education II				Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to the description of compatibility issues between types of technology. Student teachers would be able to Explore software and hardware to illustrate them as an educational / instructional technology.					
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to some aspects of current Technological Trends shaping education and e-learning mode					
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of current technological trends shaping education.					
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [ ]**	**Independent Study []**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about compatibility issues between types of technology. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.					
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate proficiency in the use of educational/ instructional technology ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***					
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**	**Learning Indicators**			**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity.**	
	Demonstrate proficiency in the use of educational/ instructional technology ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***	• Describe how technology impacts learning • Explore software and hardware to illustrate them as an educational / instructional technology • Describe compatibility issues between types of technology • Use self-help features to learn the use of software			• These strategies will respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia). • Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers	

Topic Title: Current Technological Trends shaping education II	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	Student Activity
	Introduction	**10 mins**	**Face-to-face** **Tutor through brainstorming ask student teachers to describe some of the compatibility issues between types of technology**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Gamification	**30 min**	**Face-to-face:** Guides student teachers to explore what Gamification means and why it is relevant in the teaching and learning process and which lessons can be supported in school. https://www.youtube.com/watch?v=wfivasin9j4	**Face-to-face** Student teachers explain gamification and discuss its importance in the teaching and learning process and which lesson can be supported by games. https://www.youtube.com/watch?v=wfivasin9j4
	Mind Mapping Digital Textbooks	**60 min**	**e-learning opportunities** Guides student teachers to use their mobile phones to search the internet for examples of digital textbooks after an explanation on what digital textbooks are. And discuss its merits and demerits as well as how to create digital textbooks https://www.youtube.com/watch?v=LUrd6n8oDV0	**E-learning opportunities -** Student teachers surf the net and YouTube/videos for examples of digital textbooks after an explanation on what digital textbooks are.
	Big Data Social Media	**1 hour 10 min**	**e-learning opportunities** Guides student teachers to use their mobile phones to search the internet for examples of how social media and big data are used to support learning and discuss its merits and demerits of those technologies. **Practical Activity** Guides student teachers to review work samples of other student teachers to explain progress or barriers to learning. https://www.youtube.com/watch?v=_DEB96ylK0U	**Practical Activity** Student teachers put together points to guide them in the search of work samples of other learners on social media and write reflective notes on how big data can support learning.
	Lesson Closure	**10 Minutes**	Guide student teachers to recap their discussion and the points identified in their discussions.	Student teachers recap the ideas/concepts learnt in the lesson

Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**In-lesson Assessment (Assessment of)** A combination of any of these assessment modes (Test/Assignment to go into Student teacher's portfolio); • Tests/quizzes and class exercises to examine student teachers' knowledge of current changes in information technologies. Eg. Describe how technology impacts learning, explore at least two (2) software and hardware and develop one (1) to illustrate educational / instructional technology, Describe three compatibility issues between types of technology • Assignments, group work to analyse and evaluate the need for laws and policies to govern technology. Eg. Mention two (2) policy documents that govern technology, State two (2) current changes in information technologies, List five (5) career opportunities in technology related systems. **Assesses Learning Outcomes:** **CLO1, CLO2, CLO3.NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • xi. Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesnot fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on the Use of Gamification in the teaching and learning process • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines(E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 3

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson	**Classroom technology integration I**					**Lesson Duration**	**3 Hours**
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to some current Technological Trends shaping education						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity.**		
	Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• State the regulations regarding fair use. • Present a project report on compliance with acceptable use policies and other guidelines.		• These strategies will respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia). • Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers	

Topic Title: Classroom technology integration I	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	**Student Activity**
	Introduction	10 mins	**Face-to-face** **Tutor through brainstorming ask student teachers to discuss classroom technology integration**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Why integrate technology?	50 minutes	**e-learning** Shows short videos from YouTube on why the need for technology integration. Tutor discusses the lessons that could be drawn from the videos watched https://www.youtube.com/watch?v=9cxyH1qgKZQ https://www.youtube.com/watch?v=d59eG1_Tt-Q	**e-learning** Student teachers watch videos from YouTube on the need for technology integration in the classroom; make notes from the videos for small groups discussion.
		110 minutes	**Face-to-face** Guides student teachers to analyze short videos on the need for technology integration in the classroom. And discuss the need to integrate technology in the classroom	**Face-to-Face** Student teachers write comments on the need for technology integration in the classroom , and in groups do class presentations.
	Lesson Closure	**10 Minutes**	Guide student teachers to present their discussion and the points identified in their discussions through brainstorming.	Student teachers recap the ideas/concepts learnt in the lesson.
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method: Assessment of** • Project: Identify, investigate, propose and create solutions using the educational / instructional technologies (student Teachers) have been introduced to. E.g. explore the potential of the internet as a means of personal learning and the respectful exchange of ideas and production, employ technology in development strategies for solving problems. A project report to be written. **Assesses Learning Outcomes:** **CLO3, CLO4, CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • Google Classroom			
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*.			

	Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on the need for technology integration in the classroom • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 4

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 **4** 5 6 7 8 9 10 11 12

Title of Lesson	Classroom technology integration II					Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to the need to integrate technology in the classroom						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities** -Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**			**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity.**	
	Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• State the regulations regarding fair use. • Present a project report on compliance with acceptable use policies and other guidelines.			• These strategies will respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia). • Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers.	

Topic Title: Classroom technology integration II	Sub-topic	Stage/ time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	**Student Activity**
	Introduction	**10 mins**	**Face-to-face** **Tutor through questioning ask student teachers to discuss ways to integrate technology in the classroom**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Integrate technology in the classroom	**50 minutes**	**e-learning** Shows short videos from YouTube on why the need for technology integration.	**e-learning & Seminar** Student teachers watch videos from YouTube on the need for technology integration in the classroom; make notes from the videos for small groups' discussion and discuss why technology integration is important in their STS school.
	Ways to integrate	**110minutes**	**Face-to-face** Guides student teachers to analyze the short videos on ways to integrate technology in the classroom. https://www.youtube.com/watch?v=AgLNRKQR3AI	**Seminar** Student teachers write comments on ways to integrate technology in the classroom and discuss the different ways that technology can be integrated in their STS school.
	Lesson Closure	**10 Minutes**	Guide student teachers to recap their discussion and the points identified in their discussions through questioning.	Student teachers recap the ideas/concepts learnt in the lesson
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method: Assessment of** • Projectbased assessment: Identify, investigate, propose a means of integrating ICT into lessons in the STS school. Student to write a report for the project. **Assesses Learning Outcomes:** **CLO3, CLO4, CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • Google Classroom			
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.			
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all.			

	Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on technology integration in the classroomeg. Using the Google Classroom , TESSA MOOCs etc • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines(E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 5

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 **5** 6 7 8 9 10 11 12

Title of Lesson	Classroom technology integration III					Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to the need to integrate technology in the classroom						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**		
	Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• Employ technology in development strategies for solving problems • Use variety of technologies for solving problems • Use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools.		• These strategies will respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia). • Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers.	

		• Participate in collaborative problem-solving activities		
Topic Title: Classroom technology integration III	**Sub-topic**	**Stage/time**	**Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.**	
			Teacher Activity	**Student Activity**
	Introduction	10 mins	**Face-to-face** **Tutor through a checklist ask student teachers to discuss ways to integrate technology in the classroom**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Lesson plan that integrate technology	2hrs 40 mins	**Face-to-face** Introduces the need for lesson plan for every lesson through lecturette. **Seminar** Guide student teachers to use role play, group discussions, and presentations, to discuss the lesson plan. **Face-to-face** Introduceslesson plan that integrates technology. **Practical Activity** Asks student teachers to plan lessons that integrate technology. Discuss ways to write lessons plans that integrate technologies like Eg. Web quest Create a blog Multimedia presentation Video clips https://www.youtube.com/watch?v=W13cru6eA4g	**Face-to-face** In a whole class discussion, student teachers express their understanding of lesson plan in small groups and feedback session. **Practical Activity** Student teachers plan lessons that will integrate technology and teach in small groups for whole class discussions.
	Lesson Closure	10 Minutes	Guide student teachers to present their discussion and the points identified in their discussions.	Student teachers present the ideas/concepts learnt in the lesson

Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method:** **Project:** based on the recommendations on *"ways ICTs can be integrated in the STS school"* in the last lesson, student teacher will plan lessons that will integrate technology and teach in small groups for whole class discussions. **Assesses Learning Outcomes:** **CLO3**, **CLO4**, **CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • xi. Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on Lesson Plan that integrate technology • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines(E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 6

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson	**Classroom technology integration IV**			**Lesson Duration**	**3 Hours**		
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to lesson plans that integrate technology.						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**		
	Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• Select and use appropriate tools and technology resources to accomplish a variety of tasks. • Plan and implement lessons and strategies that integrate technology to meet the diverse needs of learners in a variety of educational settings.		• These strategies will respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia). • Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers	

Topic Title: Classroom technology integration IV	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	Student Activity
	Introduction	**10 mins**	**Face-to-face** **Tutor through a checklist ask student teachers to discuss the practical ways to integrate technology in the classroom**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Integrating technology into teaching	**50mins**	**Practical activity** Demonstrates the use of technology in teaching for student teachers to observe. Eg. 1. Use google classroom 2. TESSA MOOCs http://www.open.edu/openlearncreate/course/view.php?id=2745	**Face-to-face** Student teachers observe and make notes on how to integrate technology in their teaching.
			Field Trip: Takes student teachers out to observe best practices in the use of technology in teaching.	**Field Trip:** Student teachers observe demonstration at school of visit and make notes for classroom discussion.
		110 mins	**e-learning** Shows short videos from YouTube on integration of technology in teaching. **Practical Activity** Guides student teachers to role play the integration of technology in teaching (small group activity).	e-**learning** Student teachers watch videos from YouTube and discuss the contents in whole class session. **Practical Activity** Student teachers use role play to demonstrate how to integrate technology in teaching
	Lesson Closure	**10 Minutes**	Guide student teachers to present their discussion and the points identified in their discussions.	Student teachers present the ideas/concepts learnt in the lesson to the class
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method:** Student teacher in a presentation will demonstrate the delivery of their technology enabled lesson planned in the last lesson. **Assesses Learning Outcomes:** **CLO3, CLO4, CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA)			

	• The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • xi. Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on Integrating technology into teaching • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 7

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 **7** 8 9 10 11 12

Title of Lesson	**Cognitive Science and Research-Based attributes of effective learning environments I**				**Lesson Duration**	**3 Hours**	
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to some of the current trends shaping education.						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**	**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**			
	Critically understand and apply technology resources for solving problems, and making informed decisions.***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***	• Employ technology in development strategies for solving problems • Use variety of technologies for solving problems • Use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools.		• Acquire skills in addressing equity and gender issues, use ICT tools to equity and inclusion, develop critical thinking, problem solving, creativity, collaboration skills and reflective practice.			

Topic Title: Assistive devices	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	**Student Activity**
	Introduction	**10 mins**	**Face-to-face** **Tutor through questioning ask student teachers to discuss Cognitive Science and Research-Based attributes of effective learning environments**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Learners and Learning Development and Learning competencies	**80 mins**	**Face-to-face** Discusses with student teachers on the concepts learners and learning, and then development and learning competencies and allow class discussions Eg. 1. What is learning 2. Learning Theories (Behavourism, Cognitivism, and Constructivism theories) 3. Learning styles **4.** Types of Learners etc	**Practical Activity** Student teachers discuss with theconcepts learners and learning, and then development and learning competencies and allow class discussions to relate it to what happens in school.
	Transfer of Learning **Competent and Expert performance**	**80mins**	**e-learning** shows student teachers short videos from YouTube on transfer of learning https://www.youtube.com/watch?v=hzvid3G6XTc **Practical Activity** Demonstrate the transfer of learning with some ICT concepts treated in year one, through talk for learning, and questions and answers.	**e-learning** Student teachers watch short videos from YouTube on transfer of learning. **Practical Activity** Student teachers work in small groups demonstrating transfer of learning with some ICT concepts treated in year one, through talk for learning, and questions and answers student teachers explore transfer of learning in practice in school.
	Lesson Closure	**10 Minutes**	Guide student teachers to present their discussion and the points identified in their discussions.	Student teachers present the ideas/concepts learnt in the lesson
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method: Assessment for** Student teacher to write reflective notes on what is learning to go into their portfolio **Assesses Learning Outcomes:** **CLO3, CLO4, CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			
Instructional Resources	• Smartphones			

	• Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on the need for transfer of learning • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 8

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 **8** 9 10 11 12

Title of Lesson	**Cognitive Science and Research-Based attributes of effective learning environments II**				**Lesson Duration**	**3 Hours**	
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to lesson plans that integrate technology.						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**		
	Critically understand and apply technology resources for solving problems, and making informed decisions.***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• employ technology in development strategies for solving problems • use variety of technologies for solving problems • use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools. • Participate in collaborative problem-solving activities		These strategies will respond to inclusivity and equity (ie ICT as a tool for expanding learning to diverse learners eg. People with visual impairment, dyslexia, dysgraphia) . Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers		

		• Select and use appropriate tools and technology resources to accomplish a variety of tasks. • Plan and implement lessons and strategies that integrate technology to meet the diverse needs of learners in a variety of educational settings		
Topic Title:	**Sub-topic**	**Stage/time**	**Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.**	
			Teacher Activity	**Student Activity**
	Introduction	10 mins	**Face-to-face** **Tutor through questioning ask student teachers to further discuss Cognitive Science and Research-Based attributes of effective learning environments**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Teachers and Teaching	50 minutes	**Practical Activity** Guides student teachers to role play teachers and teaching e-**learning** Shows videos from YouTube on teachers and teaching. https://www.youtube.com/watch?v=RN3iLeq1828	**Practical Activity** Student teachers role play teachers and teaching to address a learning need in a classroom. Discussion of role play to enhance understanding. **e-learning** Student teachers s watch short videos and discuss the contents in small groups
	Teaching for In-Depth Learning	60 minutes	e-**learning** Shows videos from YouTube on teaching for in-depth learning. Tutor leads a discussion of teaching methods using ICTs that enhance in-depth learning	**e-learning** Student teachers watch short videos and discuss the contents in small groups. They focus their discussion on teaching methods using ICTs that enhance in-depth learning
	Expert Teachers	50minutes	**Practical Activity** Assign student teachers task to demonstrate the concept expert teachers	**Practical Activity** In small groups student teachers undertake a project using the concept expert teachers to address a learning need. Pictures of the project and records should be kept as part of their portfolio development.
	Lesson Closure	**10 Minutes**	Guide student teachers to present their discussion and the points identified in their discussions to the class.	Student teachers present the ideas/concepts learnt in the lesson to the class in groups.

Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method: Assessment for** Student teachers to write reflective notes on teaching for in-depth learning to go into their portfolio **Assesses Learning Outcomes:** **CLO3**, **CLO4**, **CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on Expert Teachers and their characteristics • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 9

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 **9** 10 11 12

Title of Lesson	Cognitive Science and Research-Based attributes of effective learning environments III				Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.					
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to lesson plans that integrate technology.					
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.					
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Learning [ ]**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum [ ]**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.					
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***					
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**	
	Critically understand and apply technology resources for solving problems, and making informed decisions.***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• employ technology in development strategies for solving problems • use variety of technologies for solving problems • use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools.		• Activities will instil in student virtues such as honesty and critical thinking as they accurately evaluate and report on fair use of tools of technology adopted to address diverse learning needs. • They will learn to avoid biases in favour of or against specific gender, social class. Religion and ethnicity.	

Topic Title:	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	**Student Activity**
	Introduction	**10 mins**	**Face-to-face** Tutor through questioning ask student teachers to discuss Cognitive Science and Research-Based attributes of effective learning environments	**Face-to-Face** Student Teachers answer tutor's questions to set the pace for the week's lesson.
	Learning Environments Tools of Technology	**50 mins**	**Face-to-face** Uses questions to explore student teachers' understanding of learning environments as well as tools of technology	**Independent study & Seminar** Student teachers surf the net using their mobile phones for further explanations of learning environment as well as tools of technology in the teaching and learning process. Student teachers share their notes from independent study in small groups.
	Learning and Connections to Community	**60 mins**	**Face-to-face** Uses probing questions to discuss what learning and connections to community is about and its importance in the classroom.	**Independent Study** Student teachers make contributions and write down points about how learning in their STS school connects to the community in their Reflective Journal for reflection
	Assessment to support Learning	**50 mins**	**Seminar** Discusses guidelines for writing to support learning with students.	**Independent Study & Seminar** Student teachers write discuss Assessment to support learning for small group discussion
	Lesson Closure	**10 Minutes**	Give student teachers reading assignment.	Student teachers take note of the reading assignment
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method: Assessment for** Student teachers to do a project on the technology learning tools available in the STS school and how these can be used to enable learning and assessment. Student teachers to write a project report **Assesses Learning Outcomes:** **CLO3, CLO4, CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • Google Classroom			
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited.			

	Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Seminar on Techniques in Assessment to support learning • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 10

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson	Equity in Using Technology in the Classroom I					Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to lesson plans that integrate technology.						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and Practice responsible use of technology systems, information, and software. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**			**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**	
	Critically understand and apply technology resources for solving problems, and making informed decisions.***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• employ technology in development strategies for solving problems • use variety of technologies for solving problems			• Develop skills in Integration of ICT, collaboration and communication, knowledge on equity, gender and • Inclusion as well as reflection and critical thinking	

Topic Title:	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	**Student Activity**
	Introduction	**10 mins**	**Face-to-face** **Tutor through questioning ask student teachers to discuss** **Equity in using technology in the classroom**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Issues relating to Equity: Standard Based Reforms Inclusion, Cultural and Linguistic Diversity **Instructional approaches that support Inclusion**	**50 mins**	**Face-to- face & e-learning** Guides student teachers to watch short videos from YouTube on Instructional approaches that support Inclusion	**Face-to-face & Practical Activity** Student teachers share their views after watching short videos from YouTube on Instructional approaches that support Inclusion
	Differentiated Instruction **Universal Design for Learning**	**60 mins**	e-**learning** Shows short videos from YouTube on Differentiated Instruction and Universal Design for Learning.	**e-learning** Student teachers share their views on Differentiated Instruction and Universal Design for Learning for their portfolio. They relate their views to the need for differentiated instruction in school noting the differences in pupils.
	Multicultural education Sheltered Instruction	**50 mins**	**Practical Activity**. Guides student teachers in the use of their mobile phones to record classroom activities for their portfolio.	**Independent Study & Seminar** Student teachers share their views on types of videos to be included in a teaching portfolio. Based on the videos watched, student teachers discuss in groups, and justify the selection of the videos for portfolios using their STS school as a case.
	Lesson Closure	**10 Minutes**	Guide student teachers to recap their discussion and the points identified in their discussions.	Student teachers recap the ideas/concepts learnt in the lesson
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method: Assessment As** Student teachers to develop a wiki in their groups on approached to enhance inclusivity in school. The Wiki is to go into their portfolio. **Assesses Learning Outcomes:** **CLO3, CLO4, CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			

Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Workshops on planning and developing Portfolio (including E-portfolio) • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 11

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 **11** 12

Title of Lesson	Equity in Using Technology in the Classroom II					Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to lesson plans that integrate technology.						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.						
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.						
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate knowledge and skills in the use of technology to locate, evaluate , and collect information from a variety of sources ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***						
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**			**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**	
	Critically understand and apply technology resources for solving problems, and making informed decisions.***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• employ technology in development strategies for solving problems • use variety of technologies for solving problems •			• Develop skills in Integration of ICT, collaboration and communication, knowledge on equity, gender andInclusion as well as reflection and critical thinking	

Topic Title:	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.	
			Teacher Activity	**Student Activity**
	Introduction	**10 min**	**Face-to-face** **Tutor through questioning ask student teachers to discuss** **Equity in using technology in the classroom**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Available methods **Methods of Instruction**	**20 min**	**Face-to- face & e-learning** Guides student teachers to watch short videos from YouTube, on methods of Instruction.	**Face-to-face & Practical Activity** Student teachers share their views on methods of Instruction and select samples of projects to be included in their portfolio.
	Materials of Instruction **Environment of Instruction**	**30 min**	e-**learning** Shows short videos from YouTube, process in selecting Materials for Instruction as well as Environment of Instruction.	**e-learning** Student teachers share their views on process in selecting Materials for Instruction as well as Environment of Instruction. The share their views on their STS school as an environment and which materials are suitable
	Content of Instruction **Collaboration for Instruction**	**60 min**	**PracticalActivity**. Guides student teachers in the use of their mobile phones to do activities on Content of Instruction and Collaboration for Instruction.	**Independent Study & Seminar** Student teachers share their views on Content of Instruction and Collaboration for Instruction. Based on the videos watched, student teachers discuss in groups, and justify the selection of Materials of Instruction as well as Collaboration for Instruction.
	Assessment in Instruction	**50 minutes**	**Face-to-face** Guides student teachers to use concept mapping to discuss the relevance of Assessment in Instruction.	**Practical Activity** Through concept mapping, student teachers (in groups), discuss the need for Assessment in Instruction, and use PowerPoint to present their findings.
	Lesson Closure	**10 Minutes**	Guides student teachers to recap their discussion and the points identified in their discussions.	Student teachers recap the ideas/concepts learnt in the lesson
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method:** Student teacher to write reflective notes how any of the concepts (collaboration/assessment/content/environment) and its impact on instruction **Assesses Learning Outcomes:** **CLO3**, **CLO4**, **CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			

Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • Instructional Laboratories (with multimedia equipment and smartboards) • Google Classroom
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. 1. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*. Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches, PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Workshops on Content of Instruction and Collaboration for Instruction • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.

Lesson 12

Year of B.Ed.	2	Semester	1	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson	Issues in Digital Technology in education				Lesson Duration	3 Hours
Lesson description	The lesson introduces student teachers to Demonstrate knowledge and Practice responsible use of technology systems, information, and software in the classroom.					
Previous student teacher knowledge, prior learning (assumed)	Student teachers have been exposed to lesson plans that integrate technology.					
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.					
Lesson Delivery – chosen to support students in achieving the outcomes	**Face-to-face [√]**	**Practical Activity [√]**	**Work-Based Leaning**	**Seminars [√]**	**Independent Study [√]**	**e-learning opportunities [√]**	**Practicum**
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	**Face-to-face –** Both teacher and student-led approaches such as discussions of varying kinds should be used. **E-learning opportunities -**Student teachers would watch videos on YouTube/videos about responsible use of technology systems. **Seminars –** Both individual and group presentation of projects should be encouraged. **Practical Activity**- student teachers will review work samples of other student teachers to explain progress or barriers to learning **Group work:** put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device **Independent study:** any of the above methods will include an element of independent study to enable student personally engage with relevant content. Tutors to direct student teachers to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study.					
• **Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.** • **Write in full aspects of the NTS addressed**	Student teachers will: Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***					
• **Learning Outcome for the lesson, picked and developed from the course specification** • **Learning indicators for each learning outcome**	**Learning Outcomes**		**Learning Indicators**		**Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?**	
	Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. ***NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3***		• Employ technology in development strategies for solving problems • Use variety of technologies for solving problems • Use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools.		• Develop skills in Integration of ICT, collaboration and communication, knowledge on equity, gender andinclusion as well as reflection and critical thinking	

			• Participate in collaborative problem-solving activities	
Topic Title: Issues in Digital technology in education	**Sub-topic**	**Stage/time**	**Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.**	
			Teacher Activity	**Student Activity**
	Introduction	**10 min**	**Face-to-face** **Tutor through questioning ask student teachers to discuss** **Issues in digital Technology in Education**	**Face-to-Face** **Student Teachers answer tutor's questions to set the pace for the week's lesson.**
	Impact on Education	**50 min**	**Face-to- face & e-learning** Guides student teachers to watch show short videos from YouTube, on Issues in Digital technology in education as it Impacts on Education.	**Face-to-face & Practical Activity** Student teachers share their views on Issues in Digital technology in education as it Impacts on Education.
	Issues and Implications	**1 hour**	e-**learning** Shows short videos from YouTube, on Issues in Digital technology in education, Issues and Implications	**e-learning** Student teachers share their views on Issues in Digital technology in education, Issues and Implications
	The Future	**50 min**	**PracticalActivity**. Guides student teachers in the use of their mobile phones to on Issues in Digital technology in education: The Future.	**Independent Study & Seminar** Student teachers share their views on Issues in Digital technology in education: The Future.
	Lesson Closure	**10 Minutes**	Guide student teachers to recap their discussion and the points identified in their discussions.	Student teachers recap the ideas/concepts learnt in the lesson
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	**Summary of Assessment Method: Assessment As** Student teachers to write reflective notes on their views on the role of educational technologies in education and the future of those technologies. These are to go into their portfolios **Assesses Learning Outcomes:** **CLO3**, **CLO4**, **CLO5NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1& 3**			
Instructional Resources	• Smartphones • Laptops • Desktop computers • Tablets • TV and Radio • Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, • TESSA) • The iBox (CENDLOS) • Productivity tools • Subject based application software • x. Instructional Laboratories (with multimedia equipment and smartboards)			
Required Text (core)	Abbott, C. (2001). *ICT: Changing education*. London: Routledge-Falmer. Januszewski, A. (2001). *Educational technology: The development of a concept*. Englewood, CO: Libraries Unlimited. Jonassen, D. H., & Land, S. M. (1999). *Theoretical foundations of learning environments*.			

	Mahwah, NJ: Lawrence Erlbaum.
Additional Reading List	Banks, J.A., & Banks, C.M. (2009). Multicultural education: Issues and perspectives. Indianapolis, IN: Wiley Gregory, G.H., &Chapman, C.M (2006). Differentiated instructional strategies: One size doesn't fit all. Thousand Oaks, CA: Corwin Monteith, M. (2004). *ICT for curriculum enhancement*. Bristol: Intellect. Moore, M. &Kearsley, G. (2005). *Distance education: A systems view.* Belmont, CA: Thomson Wadsworth. Robertson, M., Webb, I., &Fluck, A. (2007). *Seven steps to ICT integration*. Camberwell, London: ACER T-TEL (2015), Questioning, PD Guide for Tutors Handbook, T-TEL (2015), Creative Approaches , PD Guide for Tutors Handbook T-TEL (2016), Group Work, PD Guide for Tutors Handbook
CPD needs	• Workshops on Issues in Digital technology in education: The Future. • Writing reflective notes • Participating in a community of practice/conferences and accessing online magazines (E-zines) & journals to obtain up to date content. • Team teaching and lesson observation to improve instructional strategies & practices. • Supporting student teachers in collaborating in designing and developing a wiki.
Course Assessment	[1]**Component 1:** Portfolio Assessment: (30% overall score) • Selected items of students work (3 of them – 10% each)- 30% • Midterm Assessment – 20% • Reflective Journal – 40% • Organisation of subject portfolio – 10% (how it is presented/organized) [2]**Component 2: Subject Project (30% overall semester score)** • Introduction a clear statement of aim and purpose of the project – 10% • Methodology: what the student teacher has done and why to achieve the purpose of the project – 20% • Substantive or main section – 40% • Conclusion – 30% **Component 3: End of Semester Examination – 40% overall**

[1] See rubric on Subject Portfolio Assessment in Annex 6 of NTEAP
[2] See rubric on Subject ProjectAssessment in Annex 6 of NTEAP