

**YEAR 2**

**Semester 2**

# **Four-Year B.Ed. Course Manual**

## **Technology Leadership and Management**





The Government of Ghana



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## FOREWORD

These initial teacher education course manuals were developed by a team consisting of members from Colleges of Education, and four universities namely, University of Ghana, Kwame Nkrumah University of Science and Technology, University of Education, Winneba, and University of Development Studies. This team was constituted to support the delivery of the new B.Ed. Curriculum as part of Ghana's teacher education reforms supported by T-TEL with assistance from UK Aid and overseen by the National Council for Tertiary Education (NCTE).

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 meets the requirements of the National Teachers' Standards (NTS), thus enabling them to teach effectively in basic schools.

The structure and sequence of the manuals follows a process developed through collaboration by key stakeholders. The first section is focused on the Course Information and Vision for the New Four-Year 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 which will be addressed through the course. 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-topics 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. The relevant aspects of the National Teachers' Standards to be assessed through each assessment are identified. Each course is accompanied by the required reading and reference lists 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.

In all, there are 12 lessons for each course manual. The set of first year manuals present the general courses for the beginning teacher. The second, third and final year manuals deal with specialisms and specialist programmes for student teachers. The different manuals for each successive year cover beginning teaching, developing teaching, embedding teaching and extending teaching.

Field instructions to guide Supported Teaching in School are integrated into the course manuals to provide the student teacher with the nucleus of practicing and developing teaching throughout the entire period of study to be able to meet the requirements of the 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, NTECF, Assessment Policy and Inclusion Policy. This will help to ensure that learning by student teachers' is integrated within the wider teacher education policy framework.

**Professor Mohammed Salifu**  
**Executive Secretary**  
**National Council for Tertiary Education**

## CONTENT

AUTHOR

A. Course Information							
<i>Title Page</i>							
i. 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. In doing this 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							
ii. Course Details							
Course name	<b>Technology Leadership and management</b>						
Pre-requisite	<b>None</b>						
Course Level	200	Course Code		Credit Value	3	Semester	2
<i>Table of contents</i>							
<b>1. Goal for the Subject or Learning Area</b>							
Inservice ICT teachers normally do a whole lot more than teach ICT. They normally manage laboratories, make inputs to acquisition of ICT equipment, staff and software both for teaching and school administration. The primary goal of the subject is to equip student teachers with requisite skills to enable them support technology leadership and management and to enhance the effectiveness of ICT resources that may be available in schools							
<b>2. Key contextual factors</b>							
<p>There is a high awareness of ICTs and 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. There is however low technology leadership and management capacity to sustain the existing infrastructure in schools since most Ghanaian schools, particularly in the public school's system, can be categorised as low technology-rich learning environment. Most schools lack computing facilities whilst with some schools not having electricity supply. Schools with some facilities do not favour people with disability. There is also a low capacity for Effective ICT teaching and Integration.</p> <p>Inadequate support: Most schools have inadequate technical support and teachers also lack institutional support in their use of ICT for teaching and learning, inadequate teaching and learning materials in ICT and inadequate Professional technology training opportunities and capacity building</p> <p>There is the need to have competent ICT staff who can lead in the planning, deployment and management of ICT facilities and to ensure they are inclusive.</p>							
<b>3. Course Description</b>							
<p>This course designed to introduce student teacher's role of leadership as it relates to the implementation of information and communications technology in schools. ICT teachers normally have a dual role of teaching ICT as a subject and supporting others to use of ICTs to work effectively. The course will therefore adopt a practical hand-on approach to introduce students to leadership and management concepts and processes. Students teachers will prepare leadership and management documents such as strategic plans for IT, budgets for IT projects, job descriptions and appraisal for IT staff. In doing so, the course will employ face to face interactive discussions and some authentic instructional teaching methods to enable student teachers produce some management artefacts. A mix of traditional and authentic assessment methods will be used to assess student teachers.</p> <p><b>(National Teachers' Standard: 1a, 1b, 2c, 2e, 3a, 3b, 3c, 3e, 3h, 3d, 3i, 3k, 3p, 3n/NTECF: Pillar 1, 2 &amp; 3, crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>							
4. <i>Core and transferable skills and cross cutting issues, including equity and inclusion</i>							
<p><b>Digital literacy</b> of student teachers will be enhanced by giving them opportunities to surf and present information across units using various digital tools</p> <p><b>Critical thinking</b> is developed in student teachers when they collect data, analyse and reflect on interventions.</p> <p><b>Collaboration</b> is fostered through assigning group projects and presentation of various topics across units and encouraging a healthy school-community relationship</p> <p><b>Communicative skills</b> of student teacher would be enhanced through the examination, interrogation and presentation of their misconceptions and philosophies</p> <p><b>Personal development &amp; Enquiry skills in action research</b> would be fostered acquiring skills for collecting data, analysing and initiating interventions for individual children and small groups.</p> <p><b>Respect for diversity and Individual differences</b> would be engendered in student teachers by applying appropriate</p>							

<p>interventions, examining and reflecting their usefulness</p> <p><b>Honesty and Accountability</b> would be fostered by stating the regulations regarding fair use as well as, presentation of a project report on compliance with acceptable use policies and other guidelines.</p>	
5. Course Learning Outcomes	Indicators
<p><b>CLO1:</b> Demonstrate knowledge and understanding of the basic concepts of technology leadership and management and their impact on organisational effectiveness and efficiency.</p> <p><b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>1.1 Explain the concepts of technology leadership in a written forme.g. examination, report, and quiz.</p> <p>1.2 Explain the concepts of technology management in a written form e.g. examination, report, and quiz.</p> <p>1.3 Distinguish between the concepts of technology leadership and technology management in a written form e.g. examination, report, and quiz.</p>
<p><b>CLO2:</b> Demonstrate knowledge and understanding of business modelling and the impact of ICT in educational service deliver</p> <p><b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>2.1 Explain the concept of a business model in a written form e.g. examination, report, and quiz.</p> <p>Explain the impact of ICT in educational services in a written form e.g. examination, report, and quiz.</p>
<p><b>CLO3:</b> Demonstrate knowledge and understanding of corporate and IT strategic management planning.</p> <p><b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>3.1 Explain the concepts of strategic management in a written form e.g. examination, report, and quiz.</p> <p>Conduct strategic planning for an ICT strategy in a written report.</p>
<p><b>CLO4:</b> Apply the basic concepts of human resources management including recruitment selection and performance monitoring.</p> <p><b>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>4.1 Conduct a job analysis and create a recruitment plan in a written form e.g. examination, report.</p> <p>4.2 Explain the process of selection</p> <p>4.3 Plan an employee performance appraisal in a written form e.g. examination, report.</p>
<p><b>CLO5:</b> Apply the basic concepts of financial management including costing and budgeting.</p> <p><b>NTS: 2c, 2e, 3a, 3b, 3e /</b></p>	<p>5.1 Develop a budget for an IT project or operations and present a written report.</p> <p>5.2 Perform a cost analysis of an IT project or operations and present a written report.</p>

<p><b>NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	
<p><b>CLO6:</b> Demonstrate knowledge and understanding of the basic concepts managing procurement including recruitment Ghana’s Public Procurement Act (Act 663)  <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/ NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>6.1 Explain some basic concepts of procurement management including the public procurement act, in a written form e.g. examination, report, and quiz.</p>
<p><b>CLO7:</b> Demonstrate knowledge and understanding of the basic concepts marketing management including marketing mix  <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/ NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>7.1 Explain some basic concepts of marketing management including the marketing mix in a written form e.g. examination, report, and quiz.</p>
<p><b>CLO8:</b> Demonstrate knowledge and understanding of IT management best practices and standards.  <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/ NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>8.1 Explain concepts of some IT management best practices and standards including:  a. ISO 27000  b. IT Infrastructure Library  Present answers in a written form e.g. examination, report, and quiz.</p>



6. Course Content			
Unit/ Week	Topic	Sub-topic (if any)	Teaching and learning activity to achieve the learning outcomes
1	Introduction to Technology Leadership and Management	1.1 Concepts of Technology leadership 1.2 Concepts of Technology Management	Use interactive multimedia presentations to introduce student-teacher to concepts. Seminars (Talk for Learning) & interactive discussions (Games) to further examine the concept, video analysis (e.g. From YouTube) to elaborate the systems development process. These strategies must respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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.
2	Business Models	2.1 Concepts of business models (Partners, Key resources, Key activities, offer, customer relationships, customer segments) 2.2 Emerging ICT business models and the sharing economy and education	Use interactive multimedia presentations to introduce student-teacher to concepts. Seminars (Talk for Learning) & interactive discussions (Games) to further examine the methodologies and methods, video analysis (e.g. From YouTube) to elaborate methodologies identify differences, the advantages/disadvantages etc of the various methodologies.
3	IT strategy and tactics, I	3.1 Developing an IT strategy for Education 3.2 Relationship between IT strategy and corporate strategy	Use Project-/problem- Based (Individual/Group Work) to analyse and design solution(s) for an identified educational problem. Use inquiry-based learning (Questioning) seminars (Talk for Learning), interactive discussions (Games), interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to discuss systems analysis and design techniques. These strategies must respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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.
4	IT strategy and tactics II	4.1 Strategic planning process	Use Project-/problem- Based (Individual/Group Work) to analyse and design solution(s) for an identified educational problem. Use inquiry-based learning (Questioning) seminars (Talk for Learning), interactive discussions (Games), interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to discuss systems analysis and design techniques. These strategies must respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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.
5	Managing Human Resources, I	5.1 Job Analysis 5.2 Recruitment IT staff	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to programming concepts. Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of programming concepts Students to continue the Project-/problem- Based (Individual/Group Work) work from the previous unit by developing the application designed earlier using knowledge of programming concepts covered the unit.

6	Managing Human Resources II	Selecting IT staff	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to programming concepts. Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of programming concepts Students to continue the Project-/problem- Based (Individual/Group Work) work from the previous unit by developing the application designed earlier using knowledge of programming concepts covered the unit.
7	Managing Human Resources III	Performance Appraisal of IT staff	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to programming concepts. Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of programming concepts Students to continue the Project-/problem- Based (Individual/Group Work) work from the previous unit by developing the application designed earlier using knowledge of programming concepts covered the unit.
8	2. Managing Finance, I	2.1 Costing IT projects	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to programming concepts. Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of programming concepts Students to continue the Project-/problem- Based (Individual/Group Work) work from the previous unit by developing the application designed earlier using knowledge of programming concepts covered the unit.
9	3. Managing Finance II	8.1 Budgeting for IT projects	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to programming concepts. Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of programming concepts Students to continue the Project-/problem- Based (Individual/Group Work) work from the previous unit by developing the application designed earlier using knowledge of programming concepts covered the unit.

10	4. Managing Procurement	4.1 Procurement Processes 4.2 Public Procurement Act (Act 663) 7.3 Outsourcing vs. Insourcing of IT services	Use interactive multimedia presentations to introduce student-teachers to Basic robotics concepts. Seminars (Talk for Learning) & interactive discussions (Games) to further examine the models, video analysis (e.g. From YouTube) to examine models identify Components of robots (Simulation, sensors, actuators, controllers, Feedback for control  These strategies must respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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.
11	5. Managing the IT client (Marketing)	5.1 The concept of marketing The marketing mix (Product, Price, Place, Promotion, People, Physical evidence, Process)	Use interactive multimedia presentations to introduce student-teachers to systems deployment models and related concepts. Seminars (Talk for Learning) & interactive discussions (Games) to further examine the models, video analysis (e.g. From YouTube) to examine models identify differences, the advantages/disadvantages etc of the various models.
12	6. IT Management Best Practices.	6.1 ISO 27000 Information Security Management 6.2 ITIL Information Technology infrastructure library Service Level Agreement	Use interactive multimedia presentations to introduce student-teacher to system maintenance concepts. Seminars (Talk for Learning) & interactive discussions (Games) to further examine the concepts, video analysis (e.g. From YouTube) to elaborate application of the concepts, identify differences, etc of the various concepts.

<p>7. Teaching and Learning Strategies</p> <ul style="list-style-type: none"> <li>● Individual and group presentations</li> <li>● Concept cartoons and concept maps</li> <li>● Cooperative learning</li> <li>● Think-pair-share</li> <li>● Talk for learning approaches- always, sometimes, never true, convince yourself, convince a friend; pyramid discussion etc</li> </ul>
<p>8. Course Assessment Components</p> <p><b>Component 1: Portfolio Assessment: (30% overall score)</b></p> <ul style="list-style-type: none"> <li>● Selected items of students work (3 of them – 10% each)- 30%</li> <li>● Midterm Assessment – 20%</li> <li>● Reflective Journal – 40%</li> <li>● Organisation of subject portfolio – 10% (how it is presented/organized)</li> </ul> <p><b>Summary of Assessment Method:</b> Create e-portfolios to contain but not limited to</p> <ol style="list-style-type: none"> <li>Two (2) Documents from project using Leadership and management concepts including IT strategic plans, project budgets, IT recruitment, selection &amp; appraisal documents etc.</li> <li>reflective notes of their observation during school visit relating to various technology leadership and management concepts.</li> <li>Presentations from Video Analysis, individual and group work on technology leadership and management concepts.</li> <li>One (1) test/ Assignment/group work/quiz/class exercise to evaluate their understanding of technology leadership and management concepts</li> </ol> <p><b>Weighting: 30%</b> <b>Assesses Learning Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 5, CLO 6, CLO 7, CLO 8</b></p>
<p><b>Component 2: Subject Project (30% overall semester score)</b></p> <ul style="list-style-type: none"> <li>● Introduction a clear statement of aim and purpose of the project – 10%</li> <li>● Methodology: what the student teacher has done and why to achieve the purpose of the project – 20%</li> <li>● Substantive or main section – 40%</li> <li>● Conclusion – 30%</li> </ul> <p><b>Summary of Assessment Method:</b></p> <ol style="list-style-type: none"> <li>Project-/problem-/inquiry-based assessment: Identify, investigate and develop various management documents like IT strategic plans, project budgets, IT recruitment, selection &amp; appraisal documents etc</li> </ol> <p><b>Weighting: 30%</b> <b>Assesses Learning Outcomes: CLO 3, CLO 4, CLO 5, CLO 6, CLO 7, CLO 8</b></p>
<p><b>Component 3: End of Semester Examination – 40% overall</b></p> <p><b>Summary of Assessment Method:</b> A written assessment to assess student teacher's knowledge and understanding the various concepts of technology leadership and management</p> <p><b>Weighting: 40 %</b> <b>Assesses Learning Outcomes: CLO1, CLO2</b></p>
<p>1. Required Reading and Reference List</p> <p>Bolman, L. G., &amp; Deal, T. E. (2011). <i>Leading with soul: An uncommon journey of spirit</i>. San Francisco: Jossey-Bass. Dorf, R. C. (1999). <i>The technology management handbook</i>. Boca Raton, FL: CRC Press. Dyson, J. R. (2010). <i>Accounting for Non-Accounting Students</i> (8<sup>th</sup> Ed.) Essex: Pearson Education Ltd Holtsnider, B. &amp; Jaffe, B. D. (2012) <i>IT Manager's Handbook</i> (3rd Ed.) Morgan Kaufmann Publishers Stredwick, J. (2005). <i>An Introduction to Human Resources Management</i> (2<sup>nd</sup> Ed). Burlington, MA: Elsevier Ltd</p>
<p>2. Additional Reading List</p> <p>Kotler, P. &amp; Armstrong, G. (2017) <i>Principles of Marketing</i> (17th Ed. Pearson Laudon, K. C. and Laudon, J.P. (2014). <i>Managing information systems: managing the digital firm</i> (13th Ed.) Pearson. Sivatahanu, P. A. (2005). <i>Technology leadership: A revolution in the making</i>. New York: McGraw Hill. Wilton, N. (2016) <i>An Introduction to Human Resource Management</i>, Sage Edge</p> <p>Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)</p>
<p><b>3. Teaching and Learning resources</b></p> <ul style="list-style-type: none"> <li>● Smartphones</li> <li>● Laptops</li> </ul>

- Desktop computers
- Tablets
- TV and Radio
- Open Educational Resources (Including: YouTube, MOOCs-Udemy/coursea, khan academy, TESSA)
- The iBox (CENDLOS)
- Productivity tools
- Subject based application software
- Instructional Laboratories (with multimedia equipment and smartboards)

**4. 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 TPCK students – teachers requires to learn for teaching.

# Lesson 1

Year of B.Ed.	2	Semester	2	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12
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Title of Lesson	Introduction to Technology Leadership and Management					Lesson Duration	3 Hours
Lesson description	In this lesson, Student teachers will examine the meaning of leadership and management in relation to technology. It assumes some student-teachers has some leadership and management experience from their participation in families, associations and clubs in their day life. The lesson introduces the concepts needed and progresses understand technology leadership and management. <b>This first lesson introduces student teachers to the course learning outcomes and the 3 assessment components of the course.</b> (National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have taken the <b>Introduction to Information and Communications Technology</b> course.						
Possible barriers to learning in the lesson	Some student teachers might not have had knowledge and understanding of how organisations are led						
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [ v ]	Practical Activity [ ]	Work-Based Learning	Seminars [ v ]	Independent Study [ v ]	e-learning opportunities [ v ]	Practicum
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>						
<ul style="list-style-type: none"> <li>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</li> <li>Write in full aspects of the NTS addressed</li> </ul>	<p>Student Teachers will;</p> <p>Demonstrate knowledge and understanding of the main concepts of technology leadership and management. <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>						
<ul style="list-style-type: none"> <li>Learning Outcome for</li> </ul>	Learning Outcomes	Learning Indicators			Identify which cross cutting issues – core and transferable skills, inclusivity,		

<p>the lesson, picked and developed from the course specification</p> <ul style="list-style-type: none"> <li>Learning indicators for each learning outcome</li> </ul>				equity and addressing diversity. How will these be addressed or developed?
	<p><b>CLO1:</b> Demonstrate knowledge and understanding of the basic concepts of technology leadership and management and their impact on organisational effectiveness and efficiency.  <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>		<p>1.4 Explain the concepts of technology leadership in a written form e.g. examination, report, and quiz.</p> <p>1.5 Explain the concepts of technology management in a written form e.g. examination, report, and quiz.</p> <p>1.6 Distinguish between the concepts of technology leadership and technology management in a written form e.g. examination, report, and quiz.</p>	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.
<p>Topic Title:</p>	<p>Sub-topic</p>	<p>Stage/time</p>	<p><b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b></p>	
			<p><b>Teacher Activity</b></p>	<p><b>Student Activity</b></p>
	<p>Introduction</p>	<p>30 mins</p>	<p><b>Questioning:</b> Tutor uses questioning to introduce the Course Manual and review student teacher's experience with a leadership and management in technology. (PDG Theme 2)</p>	<p><b>Questioning:</b> Student teacher answers questions and explores their experience on how they have encountered management and leadership in the past relating to technology.</p>
	<p>Introduction to Technology leadership</p>	<p>45 Mins</p>	<p><b>Groupwork</b> Tutor gives student teachers a definition of management. Class is then put into small diverse groups to discuss how software can support learning.</p>	<p><b>Groupwork</b> Student teachers take the definition of leadership and discuss in their groups and note the key concepts/words of the definition drawing from their own experiences.</p>
	<p>Introduction to technology management</p>	<p>45 Mins</p>	<p><b>Groupwork</b> Tutor gives student teachers a definition of management. Class is then put into small diverse groups to discuss how software can support learning.</p>	<p><b>Groupwork</b> Student teachers take the definition of leadership and discuss in their groups and note the key concepts/words of the definition drawing from their own experiences.</p>
	<p>Difference between leadership and management</p>	<p>40 Mins</p>	<p><b>Talk for learning</b> Tutor leads student teachers to do a group presentation of their findings during their discussion. The presentation will focus on explaining the meaning of the two terms differences and instances of their occurrence.</p>	<p><b>Talk for learning</b> Student teachers do a group presentation of their findings during their discussion focusing their presentation on explaining the meaning of the two terms differences and instances of their occurrence.</p>

	Lesson Closure	20 Mins	<b>Questioning:</b> Tutor uses questioning to summarise and recap the concepts covered for the lesson	<b>Questioning:</b> Student teacher responds to questions to summarise and recap the concepts covered for the lesson.
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<p><b>Summary of Assessment Method:</b>  <b>Assessment for Learning:</b>  Wiki on <i>“Differences in technology leadership and management in education”</i> to go into portfolio.  Assesses Learning Outcomes:  <b>CLO1:</b> Demonstrate knowledge and understanding of the basic concepts of technology leadership and management and their impact on organisational effectiveness and efficiency.  <b>Assessment to aim at achieving NTS:</b>  <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e</b></p>			
<b>Instructional Resources</b>	<ul style="list-style-type: none"> <li>i. Smartphones</li> <li>ii. Laptops</li> <li>iii. Desktop computers</li> <li>iv. Tablets</li> <li>v. TV and Radio</li> <li>vi. Open Educational Resources (Including: YouTube, MOOCs-Udemy/courseera, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>			
<b>Required Text (core)</b>	<p>Bolman, L. G., &amp; Deal, T. E. (2011). <i>Leading with soul: An uncommon journey of spirit</i>. San Francisco: Jossey-Bass.  Dorf, R. C. (1999). <i>The technology management handbook</i>. Boca Raton, FL: CRC Press.</p>			
<b>Additional Reading List</b>	<p>Holtsnider, B. &amp; Jaffe, B. D. (2012) <i>IT Manager’s Handbook</i> (3rd Ed.) Morgan Kaufmann Publishers  Sivatahanu, P. A. (2005). <i>Technology leadership: A revolution in the making</i>. New York: McGraw Hill.</p>			
<b>CPD needs</b>	<p>Need for seminar on systems development  Developing Wikis  Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content on systems development lifecycle.  Team teaching and lesson observation to improve instructional strategies &amp; practices.  Supporting student-teachers in collaborating in designing and developing a wiki.</p>			



# Lesson 2

Year of B.Ed.	2	Semester	2	Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12
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<b>Title of Lesson</b>	Business Models						<b>Lesson Duration</b>	<b>3 Hours</b>
<b>Lesson description</b>	In this lesson, Student teachers will examine the concepts of a business model, its components and emerging models.							
<b>Previous student teacher knowledge, prior learning (assumed)</b>	Student teachers have experienced various organisations and how they satisfy their stake holders.							
<b>Possible barriers to learning in the lesson</b>	Some student teachers might not understand how organisations operate							
<b>Lesson Delivery – chosen to support students in achieving the outcomes</b>	<b>Face-to-face</b> [ v ]	<b>Practical Activity</b> [ ]	<b>Work-Based Learning</b>	<b>Seminars</b> [ v ]	<b>Independent Study</b> [ v ]	<b>e-learning opportunities</b> [ v ]	<b>Practicum</b>	
<b>Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.</b>	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>							

<ul style="list-style-type: none"> <li>● <b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li>● <b>Write in full aspects of the NTS addressed</b></li> </ul>	<p>Student teachers will:</p> <p>Be able to demonstrate how ICTs are used to affect how organisational services especially educations delivered to stakeholders. <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>			
<ul style="list-style-type: none"> <li>● <b>Learning Outcome for the lesson, picked and developed from the course specification</b></li> <li>● <b>Learning indicators for each learning outcome</b></li> </ul>	<p><b>Learning Outcomes</b></p> <p><b>CLO2: Demonstrate knowledge and understanding of business modelling and the impact of ICT in educational service deliver</b> <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e / NTECF: Pillar 1, 2 &amp; 3</b> <b>crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p><b>Learning Indicators</b></p> <p>2.2 Explain the concept of a business model in a written form e.g. examination, report, and quiz. Explain the impact of ICT in educational services in a written form e.g. examination, report, and quiz.</p>	<p>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?</p> <p>These strategies will respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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</p>	
<p><b>Topic Title:</b></p>	<p><b>Sub-topic</b></p>	<p><b>Stage/time</b></p>	<p><b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b></p>	
	<p>Recap of previous week</p>	<p>20 Mins</p>	<p><b>Face-to-Face:</b> Discussion of wikis developed from the previous lesson. Tutor leads brainstorming session to recap the concepts of leadership and management.</p>	<p><b>Face-to-Face:</b> Student teachers present the wikis developed from the previous lesson. They take part in the brain storming session to discuss the concepts of leadership and management.</p>
	<p>Concepts of business models</p>	<p>40 Mins</p>	<p><b>Face-to-face:</b> Tutor-led discussion on current the meaning of business model. Using Creative Approaches (such as, games, storytelling, role paly, songs and modelling) PD Guide Theme 1.</p>	<p><b>Face-to-Face &amp; e-learning</b> Student teachers surf the internet with their mobile phones for the meaning of business model. Student teachers report their findings through small group presentations PD Guide Theme 4.</p>
	<p>Components of a business model Partners, Key resources, Key activities, offer, customer</p>	<p>40 Mins</p>	<p><b>Face-to-face:</b> Tutor shows student teachers the business model canvas to show the various components of a business. Tutor leads discussion on how the various components</p>	<p><b>Face-to-Face &amp; e-learning</b> Student teachers engages in discussions and subsequently surf the internet with their</p>

	relationships, customer segments		relate to each other using discussions. Tutor allows students teachers a few minutes to go online to check the role of various components	mobile phones for information on the role of the various components of a business model. Student teachers report their findings through small group presentations.
	Emerging ICT business models and the sharing economy and education	60 Mins	<b>e-learning &amp; Face-to-face</b> Tutor shows a video on how some business models work. E.g. the brick and mortar/click and mortar and online organisations and their impact on education e.g. distance learning, MOOCs. Student teachers then discuss in their groups the types of business models which circumstances they will be effective in supporting learning.	<b>e-learning &amp; Face-to-face</b> Student teacher watches a video on types of business model then discuss in their groups how they affect education. They also discuss and under which circumstances they will be effective.
	Lesson Closure	20 Mins	<b>Questioning:</b> Tutor uses questioning to summarise and recap the concepts covered for the day and tasks students to write reflective notes on the design issues relating to multimedia authoring	<b>Questioning:</b> Student teacher responds to questions to summarise and recap the concepts covered for the day write reflective notes on the how ICTs affect educational organisations
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<p><b>Summary of Assessment Method:</b></p> <p><b>Assessment as learning:</b> Student teachers to write reflective notes on how ICTs affect the model that educational organisations use to serve their patrons. Reflective notes to go into portfolio.</p> <p>Assesses Learning Outcomes:</p> <p><b>CLO2:</b> Demonstrate knowledge and understanding of business modelling and the impact of ICT in educational service deliver</p> <p><b>Assessment to aim at achieving NTS:</b></p> <p><b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e</b></p>			

<b>Instructional Resources</b>	<ul style="list-style-type: none"> <li>i. Smartphones</li> <li>ii. Laptops</li> <li>iii. Desktop computers</li> <li>iv. Tablets</li> <li>v. TV and Radio</li> <li>vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/courseera, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>
<b>Required Text (core)</b>	<p>Laudon, K. C. and Laudon, J.P. (2014). Managing information systems: managing the digital firm (13th Ed.) Pearson.</p> <p>Business model canvas</p>
<b>Additional Reading List</b>	<p>Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)</p>
<b>CPD needs</b>	<p>Need for seminar on business models</p> <p>Writing reflective notes</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>

# Lesson 3

Year of B.Ed.	2	Semester	2	Place of lesson in semester	12 <b>2</b> 4 5 6 7 8 9 10 11 12
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Year of B.Ed.	2	Semester	2	Place of lesson in semester			Week 3	
Title of Lesson	IT strategy and tactics.						Lesson Duration	3 Hours
Lesson description	In this lesson, student teachers will examine what ICT strategy and tactics are. It assumes students-teachers have no prior organisational strategy experience and introduces the concepts needed and progresses to support understanding. <b>(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).</b>							
Previous student teacher knowledge, prior learning (assumed)	Student teachers have completed prior lesson on how organisation work to deliver value to their stakeholders							
Possible barriers to learning in the lesson	Some student teachers might not have good understanding of prior lessons on business models.							
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-Face [ v ]	Practical work [ v ]	Work Based Learning [ ]	Seminars [ v ]	Independent Study [ ]	e-learning opportunities [ v ]	Practicum [ ]	
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-Face:</b> lecturette, discussions and other talk for learning approaches should be employed</p> <p><b>Practical Activity:</b> Individual and group activities involving surfing the internet for current technological trends shaping education.</p> <p><b>E-learning opportunities:</b> information and other related material would be gleaned from the internet using their phones and other digital devices.</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>							

<ul style="list-style-type: none"> <li>● <b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li>● <b>Write in full aspects of the NTS addressed</b></li> </ul>	<p><b>Student teachers will:</b></p> <p>Demonstrate understanding of corporate level, business level and information technology strategy and how they are linked with each other. <i>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</i></p>		
<ul style="list-style-type: none"> <li>● <b>Learning Outcomes for the lesson, picked and developed from the course specification</b></li> <li>● <b>Learning indicators for each learning outcome</b></li> </ul>	<p><b>Learning Outcomes</b></p>	<p><b>Learning Indicators</b></p>	<p><b>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?</b></p>
	<p><b>CLO3:</b> Demonstrate knowledge and understanding of corporate and IT strategic management planning. <i>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e</i></p>	<p>Explain the concepts of strategic management in a written form</p>	<p>These strategies will respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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</p>

Week 1 Topic Title:	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.	
			Teaching Activities:	Student Activity
	Recap of previous week	30 mins	<b>Face-to-Face:</b> Discussion of wikis developed from the previous lesson. Tutor leads brain storming session to recap the concepts of business models	<b>Face-to-Face:</b> Student teachers present the wikis developed from the previous lesson. They take part in the brain storming session to recap the concepts of business model.
	Introduction to Organisational Strategy for Education	<b>40 mins</b>	<b>Face to face:</b> Tutor uses s short interactive lecture to introduce student teacher to what an organisational strategy is.	<b>Face to face:</b> Student teacher listen to interactive lecture and engages by asking and answering questions.
	Relationship between IT strategy and corporate/business level strategy	<b>50 mins</b>	<b>Face-to-face:</b> Tutor shows student teachers short interactive lecture to explain what corporate, business level and IT strategy are and how they link with each other.  <b>Seminar:</b> Tutor lead student teachers to discuss the rational for the linkages of the various strategies.	<b>Face-to-Face</b> Students teachers listen and interact with peers and tutor in short interactive lecture to explain what corporate, business level and IT strategy are and how they link with each other.  <b>Seminar:</b> Student teachers engage in class discussion of the rational for the linkages of the various strategies.
	Examples of IT strategy and their impact	<b>40 Mins</b>	<b>Talk for learning:</b> Tutor leads class to explore and discuss IT strategies used by various organisations including educational institution and schools to achieve their goals. Tutor breaks student teachers into small diverse groups and tasks them to identify an IT strategy and how it can support their STS school to achieve their goals	<b>Talk for learning:</b> student teacher engages in class to explore and discuss IT strategies used by various organisations including educational institution and schools to achieve their goals. In their groups, student teachers to identify an IT strategy and how it can support their STS school to achieve their goals
	Lesson Closure	20 Mins	<b>Questioning:</b> Tutor uses questioning to summarise and recap the concepts covered for the lesson. Tutor tasks student teachers to write reflective notes	<b>Questioning:</b> Student teacher responds to questions to summarise and recap the concepts covered for the lesson.
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<b>In-lesson and Formative Assessment:</b> <b>Assessment for learning:</b> Individual and group presentations on which IT strategy will be suitable at an STS school and how it can improve teaching and learning. <b>Assessment as learning:</b> Individual reflective notes on how IT strategies can help schools achieve their goals. Reflective notes to go into portfolio  <b>core skills to be developed:</b> critical thinking, collaboration and communicative skills, personal development  <b>Assesses Learning Outcomes:</b>			

	<p><b>CLO3:</b> Demonstrate knowledge and understanding of corporate and IT strategic management planning.</p> <p><b>Assessment to aim at achieving NTS:</b></p> <p><b>1b, 1c, 1e, 1f, 1g, 2c, 2e</b></p>
<b>Instructional Resources</b>	<ul style="list-style-type: none"> <li>i. Smartphones</li> <li>ii. Laptops</li> <li>iii. Desktop computers</li> <li>iv. Tablets</li> <li>v. TV and Radio</li> <li>vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/courseera, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>
<b>Required Text (core)</b>	<p>Laudon, K. C. and Laudon, J.P. (2014). Managing information systems: managing the digital firm (13th Ed.) Pearson.</p>
<b>Additional Reading List</b>	<p>Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)</p>
<b>CPD needs</b>	<p>Accessing online resources in magazines(E-zines) &amp; journals to obtain up to date content on IT strategies</p> <p>Writing reflective notes</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>



# Lesson 4

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 <b>4</b> 5 6 7 8 9 10 11 12
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Title of Lesson	IT strategy and tactics II				Lesson Duration	3 Hours	
Lesson description	In this lesson, Student teachers will go through the strategic planning process. They will develop a strategic plan for their school. <b>(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).</b>						
Previous student teacher knowledge, prior learning (assumed)	Student teachers know what corporate level/business level & IT strategy is						
Possible barriers to learning in the lesson	Some student teachers might not have a good understanding of what strategy is						
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [ v ]	Practical Activity [ v ]	Work-Based Learning	Seminars [ ]	Independent Study [ ]	e-learning opportunities [ v ]	Practicum
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>E-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about compatibility issues between types of technology.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>						
<ul style="list-style-type: none"> <li>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</li> <li>Write in full aspects of the NTS addressed</li> </ul>	<p>Student teachers will:</p> <p>Write computer programs and develop a programming style that is accepted industry practice <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>						
<ul style="list-style-type: none"> <li>Learning Outcome for the lesson, picked and developed from the course specification</li> <li>Learning indicators for</li> </ul>	Learning Outcomes	Learning Indicators			Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity.		
	CLO3: Demonstrate knowledge and understanding of corporate and IT strategic management planning.	Conduct strategic planning for an ICT strategy in a written report.			These strategies will respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. People with visual impairment, dyslexia, dysgraphia). Identify the instances when personal,		

each learning outcome	<b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b>		cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers	
Topic Title:	Sub-topic	Stage/time	<b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b>	
			<b>Teacher Activity</b>	<b>Student Activity</b>
	Recap of previous lessons	20 mins	<b>Face to face:</b> Tutor guides student teacher to discuss their reflection notes on strategy and how it can impact ICT services].	<b>Face to face:</b> Student teacher presents and discusses their own and others reflective notes on IT strategy and how it affects ICT services
	External, Industry and internal Analysis	80 min	<b>E learning, Questioning and practical:</b> Tutor uses the aid of multimedia (images/videos) to introduce student teachers to the external, industry and internal analysis methodologies. Tutor then breaks students into groups and guides student teachers in a practical to conduct an internal, industry and external analysis of their STS school	<b>e-learning opportunities:</b> Student teachers watch video on strategic analysis.
				<b>Group Work:</b> Student teachers participates in group discussions to analyse their STS schools
	SWOT Analysis and choosing a strategy	60 mins	<b>Group discussion &amp; Seminar:</b> Tutor continues with the class into their small diverse groups to discuss the strengths weaknesses Opportunities and Strengths of their STS school and based on that choose the best path to achieve their school goals	<b>Group discussion &amp; Seminar:</b> Student teachers discuss in their groups discuss the strengths weaknesses Opportunities and Strengths of their STS school and based on that choose the best path to achieve their school goals
	Closure	20 mins	<b>Closure:</b> Tutor guide the student teacher to recap the discussions for the day (PDG Theme 3).	<b>Closure:</b> Tutor guide the student teacher to recap the discussions for the day. (PDG Theme 3).
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	<b>Summary of Assessment Method:</b> <b>Assessment of learning:</b> student teachers will develop strategic plan for an ICT strategy for their STS school. An IT strategy will be presented in a project report on system modelling to contribute to project report. <b>CLO3:</b> Demonstrate knowledge and understanding of corporate and IT strategic management planning. <b>Assessment to aim at achieving NTS:</b> <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e</b>			
Instructional Resources	i. Smartphones ii. Laptops iii. Desktop computers iv. Tablets v. TV and Radio vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/courseera, khan academy, TESSA) vii. The iBox (CENDLOS) viii. Productivity tools ix. Subject based application software x. Instructional Laboratories (with multimedia equipment and smartboards)			

<b>Required Text (core)</b>	Bolman, L. G., & Deal, T. E. (2011). <i>Leading with soul: An uncommon journey of spirit</i> . San Francisco: Jossey-Bass.
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)
<b>CPD needs</b>	<p>Writing reflective notes</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content on strategic planning.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>

# Lesson 5

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 4 <b>5</b> 6 7 8 9 10 11 12
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Title of Lesson	Managing Human Resources, I				Lesson Duration	3 Hours
Lesson description	In this lesson, Student teachers will go through the process of analysing tasks or a potential job, deciding whether to employ and how to get potential good applicants to apply in adequate numbers ( <i>National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes</i> ).					
Previous student teacher knowledge, prior learning (assumed)	Students teachers would have been exposed to some form of recruitment for example they would have seen job advertisement.					
Possible barriers to learning in the lesson	Some student teachers might not have some misconceptions of the recruitment process					
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [ v ]	Practical Activity [ v ]	Work-Based Learning	Seminars [ v ]	Independent Study [ v ]	e-learning opportunities [ v ] Practicum
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work</b>: 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</p> <p><b>Independent study</b>: 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/courseera, khan academy, TESSA) to support independent study.</p>					
<ul style="list-style-type: none"> <li>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</li> <li>Write in full aspects of the NTS addressed</li> </ul>	<p>Student teachers will:</p> <p>Understand and be able to identify which types of ICT tasks require employment and how they can get the right people to apply for such a job. <i>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes</i>).</p>					
<ul style="list-style-type: none"> <li>Learning Outcome for the lesson, picked and developed from the course specification</li> <li>Learning indicators for each learning outcome</li> </ul>	<p><b>Learning Outcomes</b></p> <p><b>CLO4</b>: Apply the basic concepts of human resources management including recruitment selection and performance monitoring. <i>NTS: 2c, 2e, 3a, 3b, 3e /</i></p>	<p><b>Learning Indicators</b></p> <p>Conduct a job analysis and create a recruitment plan in a written form</p>			<p>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?</p> <p>These strategies will respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. People with visual impairment, dyslexia, dysgraphia). Identify the</p>	

	<b>NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b>		instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student-teachers	
<b>Topic Title:</b>	<b>Sub-topic</b>	<b>Stage/time</b>	<b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b>	
			<b>Teacher Activity</b>	<b>Student Activity</b>
	Introduction and review of RPK	20 Mins	Tutor uses questioning to recap the concepts of the strategic planning process.	Student teacher answers questions to recap the concepts of strategic planning process
	Job analysis	70 Mins	<b>Interactive lectures:</b> Tutor uses an interactive lecturette to explain the introduce student teachers to the concepts of job analysis. Tutor groups students to conduct a job analysis of an IT job in their STS school	<b>Interactive lectures:</b> Student teacher engages in the lecturette discussions to support understanding of the concepts of job analysis. Student teachers in their groups do an analysis for an IT job in their STS school
	recruitment	70 Mins	<b>Questioning &amp; face to face:</b> Tutor uses questioning to draw attention the fact that there must be justification for employing someone to do a job. He then uses an interactive lecturette to explain the concepts of recruitment and the recruitment processes	<b>Questioning &amp; face to face:</b> Student teacher answers questions to draw out the justification for hiring decisions. Student teacher interacts with peers and tutor to deepen understanding the concepts of recruitment and the recruitment processes
Closure	20 Mins	Tutor moderates group presentation of their job analysis for their projects to recap the lesson	Student teachers do a group presentation of their Job analysis for their projects to recap the lesson	
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<p><b>Summary of Assessment Method:</b></p> <p><b>Assessment of learning:</b> Mini Project: Conduct a job analysis for the computer laboratory for the STS school and develop a recruitment plan for same.</p> <p>Assesses Learning Outcomes: <b>CLO4:</b> Apply the basic concepts of human resources management including recruitment selection and performance monitoring.</p> <p><b>Assessment to aim at achieving NTS:</b> <b>NTS: 2c, 2e, 3a, 3b, 3e</b></p>			
<b>Instructional Resources</b>	<p>i. Smartphones ii. Laptops iii. Desktop computers</p>			

	<p>iv. Tablets</p> <p>v. TV and Radio</p> <p>vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursea, khan academy, TESSA)</p> <p>vii. The iBox (CENDLOS)</p> <p>viii. Productivity tools</p> <p>ix. Subject based application software</p> <p>x. Instructional Laboratories (with multimedia equipment and smartboards)</p>
<b>Required Text (core)</b>	Wilton, N. (2016) An Introduction to Human Resource Management, Sage Edge
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)
<b>CPD needs</b>	<p>Need for seminar on job analysis and recruitment.</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content on ITC recruitment processes.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>

# Lesson 6

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 4 5 <b>6</b> 7 8 9 10 11 12
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Title of Lesson	Managing Human Resources II				Lesson Duration	3 Hours	
Lesson description	In this lesson, Student teachers will be introduced to the process of selecting the suitable candidate for employment and how to measure the performance of such an employee. <i>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</i>						
Previous student teacher knowledge, prior learning (assumed)	Student teachers have an understanding of the recruitment process from the previous lesson						
Possible barriers to learning in the lesson	Some student teachers might have problems understanding the recruitment process.						
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [v]	Practical Activity [v]	Work-Based Learning [ ]	Seminars [v]	Independent Study [v]	e-learning opportunities [v]	Practicum [ ]
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work</b>: 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</p> <p><b>Independent study</b>: 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/courseera, Khan academy, TESSA) to support independent study.</p>						

<ul style="list-style-type: none"> <li>• <b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li>• <b>Write in full aspects of the NTS addressed</b></li> </ul>	Student teachers will: Demonstrate an understanding of the selection and appraisal process of ICT staff. <b>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3</b>			
<ul style="list-style-type: none"> <li>• <b>Learning Outcome for the lesson, picked and developed from the course specification</b></li> <li>• <b>Learning indicators for each learning outcome</b></li> </ul>	<b>Learning Outcomes</b>	<b>Learning Indicators</b>	<b>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?</b>	
	<b>CLO4:</b> Apply the basic concepts of human resources management including recruitment selection and performance monitoring. <b>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b>	4.1 Explain the process of selection	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.	
<b>Topic Title:</b>	<b>Sub-topic</b>	<b>Stage/time</b>	<b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b>	
	Introduction and review of RPK	30 Mins	<b>Teacher Activity</b> Tutor uses questioning to recap the concepts of the job analysis and recruitment processes.	<b>Student Activity</b> Student teacher answers questions to recap the concepts of job analysis and recruitment processes.
	Selection	130 Mins	<b>Questioning &amp; face to face:</b> Tutor uses questioning to draw attention the need to have an objective and effective means of choosing applicants to employ. Tutor then uses an interactive lecturette to explain the techniques (including interview, tests, etc) used for the selection of employees. Student teachers are broken into groups to discuss selection methods	<b>Questioning &amp; face to face:</b> Student teacher answers questions to draw out the need to have objective and effective selection methods to make a hiring decision. Student teacher interacts with peers and tutor to deepen understanding the selection techniques. Student teachers in their groups discuss which selection method will be suitable to select an IT employee.
	Lesson Closure	<b>20 mins</b>	Tutor reviews program code with student teachers to recap concepts learnt.	Student teacher reviews with tutor program code with student teachers to recap concepts learnt.
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<b>Summary of Assessment Method:</b> <b>Assessment as learning:</b> Group presentation on the types and effectiveness of staff selection processes  Assesses Learning Outcomes:			



	<p><b>CLO4:</b> Apply the basic concepts of human resources management including recruitment selection and performance monitoring.</p> <p><b>Assessment to aim at achieving NTS:</b>  <b>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3</b></p>
<b>Instructional Resources</b>	<ul style="list-style-type: none"> <li>i. Smartphones</li> <li>ii. Laptops</li> <li>iii. Desktop computers</li> <li>iv. Tablets</li> <li>v. TV and Radio</li> <li>vi. Open Educational Resources (Including: YouTube, MOOCs-Udemy/courseera, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>
<b>Required Text (core)</b>	Wilton, N. (2016) An Introduction to Human Resource Management, Sage Edge
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)
<b>CPD needs</b>	<p>Need for seminar on staff selection</p> <p>Writing reflective notes</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>

# Lesson 7

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 4 5 6 <b>7</b> 8 9 10 11 12
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Title of Lesson	Managing Human Resources III						Lesson Duration	3 Hours
Lesson description	In this lesson, student teachers will learn additional programming logic. They will explore data types and write program code using arrays, which can handle exceptions and errors. <b>(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).</b>							
Previous student teacher knowledge, prior learning (assumed)	Student teachers have taken a lesson in basic programming							
Possible barriers to learning in the lesson	Some student teachers might have problem understanding or remembering language syntax.							
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [ v ]	Practical Activity [ v ]	Work-Based Learning	Seminars [ v ]	Independent Study [ v ]	e-learning opportunities [ v ]	Practicum	
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>							

<ul style="list-style-type: none"> <li>● <b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li>● <b>Write in full aspects of the NTS addressed</b></li> </ul>	<p>Student Teachers will:</p> <p>Write computer programs and develop a programming style that is accepted industry practice <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>			
<ul style="list-style-type: none"> <li>● <b>Learning Outcome for the lesson, picked and developed from the course specification</b></li> <li>● <b>Learning indicators for each learning outcome</b></li> </ul>	<p><b>Learning Outcomes</b></p>	<p><b>Learning Indicators</b></p>	<p>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?</p>	
	<p><b>CLO4:</b> Apply the basic concepts of human resources management including recruitment selection and performance monitoring. <b>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>Plan an employee performance appraisal in a written form</p>	<p>Develop skills in Integration of ICT, collaboration and communication, knowledge on equity, gender and Inclusion as well as reflection and critical thinking</p>	
<ul style="list-style-type: none"> <li>●</li> </ul>	<p>CLO6. Build a professional record to reflect student teacher’s accomplishments, skills, experiences, learning and attributes <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>	<p>6.1 Build a portfolio</p>		
<p><b>Topic Title:</b></p>	<p><b>Sub-topic</b></p>	<p><b>Stage/time</b></p>	<p><b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b></p>	
	<p>Introduction and review of RPK</p>	<p>30 Mins</p>	<p><b>Teacher Activity</b></p> <p>Tutor uses questioning to recap the concepts of the selection techniques processes.</p>	<p><b>Student Activity</b></p> <p>Student teacher answers questions to recap the concepts of selection techniques processes.</p>
	<p>Performance appraisal</p>	<p>130 Mins</p>	<p><b>Questioning &amp; face to face:</b> Tutor uses questioning to draw attention the need to have an objective and effective means of measuring performance of employees. Tutor then uses an interactive lecturette to explain the techniques (including interview, tests, etc) used for the performance appraisal of employees. Student teachers are broken into groups to discuss performance appraisal methods</p>	<p><b>Questioning &amp; face to face:</b> Student teacher answers questions to draw out the need to have objective and effective performance measurement methods to make good human resources decision. Student teacher interacts with peers and tutor to deepen understanding the performance management techniques. Student teachers in their groups discuss which performance appraisal method will be suitable to assess an IT employee.</p>

	Closure	<b>20 mins</b>	Tutor reviews program code with student teachers to recap concepts learnt.	Student teacher reviews with tutor program code with student teachers to recap concepts learnt.
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<p><b>Summary of Assessment Method:</b></p> <p><b>Assessment as learning:</b> Student teacher to write reflective notes on the staff performance measurement used in their STS school evaluating the effectiveness on the mechanisms. The reflective notes are to go into their portfolio as a CD.</p> <p>Assesses Learning Outcomes:</p> <p><b>CLO4:</b> Apply the basic concepts of human resources management including recruitment selection and performance monitoring.</p> <p><b>Assessment to aim at achieving NTS:</b></p> <p><b>NTS: 2c, 2e, 3a, 3b, 3e</b></p>			
<b>Instructional Resources</b>	<ul style="list-style-type: none"> <li>i. Smartphones</li> <li>ii. Laptops</li> <li>iii. Desktop computers</li> <li>iv. Tablets</li> <li>v. TV and Radio</li> <li>vi. Open Educational Resources (Including: YouTube, MOOCs-Udemy/coursea, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>			
<b>Required Text (core)</b>	Wilton, N. (2016) An Introduction to Human Resource Management, Sage Edge			
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)			
<b>CPD needs</b>	<p>Need for seminar on performance management</p> <p>Writing reflective notes</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>			

# Lesson 8

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 4 5 6 7 <b>8</b> 9 10 11 12
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Title of Lesson	Managing Finance, I						Lesson Duration	3 Hours
Lesson description	In this lesson, student teachers will examine what goes into the cost of IT resources. Student teachers will be introduced to the concept of Total Cost of Ownership (TCO) <i>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3.</i>							
Previous student teacher knowledge, prior learning (assumed)	Student teachers are familiar with the ICT resources that are used in schools are also familiar with the associate cost of maintaining the resources.							
Possible barriers to learning in the lesson	Some student teachers might not have enough knowledge and understanding what is							
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [ v ]	Practical Activity [ v ]	Work-Based Learning	Seminars [ v ]	Independent Study [ v ]	e-learning opportunities [ v ]	Practicum	
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>							

<ul style="list-style-type: none"> <li>● <b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li>● <b>Write in full aspects of the NTS addressed</b></li> </ul>	<p>Student Teachers will:</p> <p>Conduct cost some ICT resources in the STS school using the total cost of ownership approach</p>			
<ul style="list-style-type: none"> <li>● <b>Learning Outcome for the lesson, picked and developed from the course specification</b></li> <li>● <b>Learning indicators for each learning outcome</b></li> </ul>	<p><b>Learning Outcomes</b></p>	<p><b>Learning Indicators</b></p>	<p>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?</p>	
	<p><b>CLO5:</b> Apply the basic concepts of financial management including costing and budgeting. <b>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>5.1 Perform a cost analysis of an IT project or operations and present a written report.</p>	<p>Develop skills in Integration of ICT, collaboration and communication, knowledge on equity, gender and Inclusion as well as reflection and critical thinking</p>	
<p><b>Topic Title:</b></p>	<p><b>Sub-topic</b></p>	<p><b>Stage/time</b></p>	<p><b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b></p>	
	<p>Recap of previous lesson</p>	<p><b>30 mins</b></p>	<p><b>Questioning:</b> Tutor uses questioning to recap student teacher’s knowledge and understanding of performance appraisals.</p>	<p><b>Questioning:</b> Student teacher answers questions to recap student teacher’s knowledge and understanding of performance appraisals. Use a concepts maps to link the key points.</p>
	<p>Cost</p>	<p><b>90 min</b></p>	<p><b>Face-to- face &amp; e-learning</b> Guides student teachers to watch short videos from YouTube, on what cost is and the types of cost. Tutor then leads a discussion to discuss the concepts of cost</p>	<p><b>Face-to-face &amp; e-learning</b> Student teachers watch a video share their views on cost Student teachers share their views on what cost are and the types of cost.</p>
	<p>Total Cost of Ownership</p>	<p><b>90 min</b></p>	<p><b>E-learning &amp; PracticalActivity.</b> Shows short videos on the meaning of total Cost of Ownership. Tutor then Guides student teachers in their groups to obtain the TCO of an ICT resource.</p>	<p><b>Independent Study &amp; PracticalActivity</b> Based on the videos watched, student teachers discuss in groups and discuss the concept of TCO. Student teachers in their groups work to obtain a the TCO of an ICT resource.</p>

	Closure	<b>10 mins</b>	Tutor leads student teachers to review their knowledge of the concept of cost and recap concepts learnt.	Student teacher reviews with tutor the understanding or cost.
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<p><b>Summary of Assessment Method:</b>  <b>Assessment of learning:</b> Mini Project: Student teachers will undertake a project to obtain the Total Cost of Ownership (TCO) of an ICT recourse (e.g. Computer Laboratory/network/software etc) and write a project report on it.</p> <p>Assesses Learning Outcomes:  <b>CLO5:</b> Apply the basic concepts of financial management including costing and budgeting.  <b>Assessment to aim at achieving NTS:</b>  <b>NTS: 2c, 2e, 3a, 3b, 3e</b></p>			
<b>Instructional Resources</b>	<ul style="list-style-type: none"> <li>i. Smartphones</li> <li>ii. Laptops</li> <li>iii. Desktop computers</li> <li>iv. Tablets</li> <li>v. TV and Radio</li> <li>vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/courseera, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>			
<b>Required Text (core)</b>	Dyson, J. R. (2010). <i>Accounting for Non-Accounting Students</i> (8 <sup>th</sup> Ed.) Essex: Pearson Education Ltd			
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)			
<b>CPD needs</b>	<p>Need for seminar on Total Cost of Ownership</p> <p>Writing reflective notes</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>			

# Lesson 9

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 4 5 6 7 8 <b>9</b> 10 11 12
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Title of Lesson	Managing Finance II						Lesson Duration	3 Hours
Lesson description	In this lesson, Student teachers will learn how to budget for ICT. <b>(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).</b>							
Previous student teacher knowledge, prior learning (assumed)	Student teachers have taken earlier lesson and have a good grasp of how to cost ICT resources							
Possible barriers to learning in the lesson	Some student teachers might not have grasped earlier costing concepts.							
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [ v ]	Practical Activity [ v ]	Work-Based Learning	Seminars [ v ]	Independent Study [ v ]	e-learning opportunities [ v ]	Practicum	
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>							



<ul style="list-style-type: none"> <li>● <b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li>● <b>Write in full aspects of the NTS addressed</b></li> </ul>	<p>Student Teachers will:</p> <p>Further develop their programming skills and gain an ability to develop computer programs and develop a programming style that is accepted industry practice <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>			
<ul style="list-style-type: none"> <li>● <b>Learning Outcome for the lesson, picked and developed from the course specification</b></li> <li>● <b>Learning indicators for each learning outcome</b></li> </ul>	<p><b>Learning Outcomes</b></p>	<p><b>Learning Indicators</b></p>	<p>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity. How will these be addressed or developed?</p>	
	<p><b>CLO5:</b> Apply the basic concepts of financial management including costing and budgeting. <b>NTS: 2c, 2e, 3a, 3b, 3e / NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p>5.2 Develop a budget for an IT project or operations and present a written report.</p>	<p>Develop skills in Integration of ICT, collaboration and communication, knowledge on equity, gender and Inclusion as well as reflection and critical thinking.</p>	
<p><b>Topic Title:</b></p>	<p><b>Sub-topic</b></p>	<p><b>Stage/time</b></p>	<p><b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b></p>	
			<p><b>Teacher Activity</b></p>	<p><b>Student Activity</b></p>
	<p>Recap of previous lesson</p>	<p><b>20 mins</b></p>	<p><b>Questioning:</b> Tutor uses questioning to recap student teacher's knowledge and understanding of cost. Use a concepts maps to link the key points.</p>	<p><b>Questioning:</b> Student teacher answers questions to recap student teacher's knowledge and understanding of cost. Use a concepts maps to link the key points.</p>
	<p>Budgets</p>	<p><b>60 mins</b></p>	<p><b>Face-to-face &amp; e-learning</b> Tutor guides student teachers to watch show short videos from YouTube, on how to prepare IT budgets.</p>	<p><b>Face-to-face &amp; Practical Activity</b> Student teachers share their views on how to prepare IT budgets</p>
	<p>Budget preparation</p>	<p><b>80 mins</b></p>	<p><b>Group work:</b> In their groups tutor guides them to prepare a budget for an IT project that will be suitable in their STS school.</p>	<p><b>e-learning</b> Student teachers work in groups to prepare a budget for a project that will be suitable for their STS school.</p>
	<p>Lesson Closure</p>	<p><b>20 mins</b></p>	<p>Tutor leads student teacher groups to review their understanding of budgets and how to prepare them.</p>	<p>Student teacher review their knowledge of budgets and how to prepare them.</p>
<p><b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b></p>	<p><b>Summary of Assessment Method:</b> <b>Assessment of learning:</b> Mini Project - Student teachers to develop a project budget for an ICT resource needed in their STS school.</p>			

	<p>Assesses Learning Outcomes:  <b>CLO5:</b> Apply the basic concepts of financial management including costing and budgeting.  <b>Assessment to aim at achieving NTS:</b>  <b>NTS: 2c, 2e, 3a, 3b, 3e</b></p>
<b>Instructional Resources</b>	<p>i. Smartphones  ii. Laptops  iii. Desktop computers  iv. Tablets  v. TV and Radio  vi. Open Educational Resources (Including: YouTube, MOOCs-Udemy/coursea, khan academy, TESSA)  vii. The iBox (CENDLOS)  viii. Productivity tools  ix. Subject based application software  x. Instructional Laboratories (with multimedia equipment and smartboards)</p>
<b>Required Text (core)</b>	<p>Dyson, J. R. (2010). <i>Accounting for Non-Accounting Students</i> (8<sup>th</sup> Ed.) Essex: Pearson Education Ltd</p>
<b>Additional Reading List</b>	<p>Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)</p>
<b>CPD needs</b>	<p>Seminar on budgeting  Writing reflective notes  Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.  Team teaching and lesson observation to improve instructional strategies &amp; practices.  Supporting student teachers in collaborating in designing and developing a wiki.</p>

# Lesson 10

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 4 5 6 7 8 9 <b>10</b> 11 12
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Title of Lesson	Managing Procurement						Lesson Duration	3 Hours
Lesson description	In this lesson, student teachers will explore issues relating to procuring ICT goods and services. Students teachers will also be exposed to some of the elements of the Public Procurement laws of Ghana.							
Previous student teacher knowledge, prior learning (assumed)	Student teachers are familiar with ICT resources that are used by schools.							
Possible barriers to learning in the lesson	Some student teachers might not have a good knowledge of goods and services used by schools.							
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to-face [ v ]	Practical Activity [ v ]	Work-Based Learning	Seminars [ v ]	Independent Study [ v ]	e-learning opportunities [ v ]	Practicum	
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>							

<ul style="list-style-type: none"> <li>● <b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li>● <b>Write in full aspects of the NTS addressed</b></li> </ul>	<p>Student teachers will:</p> <p>Demonstrate knowledge and understanding of the various system deployment models and be able to plan system deployment <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>				
<ul style="list-style-type: none"> <li>● <b>Learning Outcome for the lesson, picked and developed from the course specification</b></li> <li>● <b>Learning indicators for each learning outcome</b></li> </ul>	<p><b>Learning Outcomes</b></p> <p><b>CLO6:</b> Demonstrate knowledge and understanding of the basic concepts managing procurement including recruitment Ghana’s Public Procurement Act (Act 663) <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/ NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b></p>	<p><b>Learning Indicators</b></p> <p>Explain some basic concepts of procurement management including the public procurement act, in a written form e.g. examination, report, and quiz.</p>	<p>Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity.</p> <p>These strategies will respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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</p>		
	<p><b>Sub-topic</b></p>	<p><b>Stage/time</b></p>	<p><b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b></p> <table border="1" data-bbox="775 1256 1497 1323"> <tr> <td data-bbox="775 1256 1007 1323"> <p><b>Teacher Activity</b></p> </td> <td data-bbox="1007 1256 1497 1323"> <p><b>Student Activity</b></p> </td> </tr> </table>	<p><b>Teacher Activity</b></p>	<p><b>Student Activity</b></p>
<p><b>Teacher Activity</b></p>	<p><b>Student Activity</b></p>				
	<p>Recap of previous lesson</p>	<p><b>20 mins</b></p>	<table border="1" data-bbox="775 1323 1497 1615"> <tr> <td data-bbox="775 1323 1007 1615"> <p><b>Questioning:</b> Tutor uses questioning to recap student teacher’s knowledge and understanding of preparation of budgets.</p> </td> <td data-bbox="1007 1323 1497 1615"> <p><b>Questioning:</b> Student teacher answers questions to recap student teacher’s knowledge and understanding of preparation of budgets.</p> </td> </tr> </table>	<p><b>Questioning:</b> Tutor uses questioning to recap student teacher’s knowledge and understanding of preparation of budgets.</p>	<p><b>Questioning:</b> Student teacher answers questions to recap student teacher’s knowledge and understanding of preparation of budgets.</p>
<p><b>Questioning:</b> Tutor uses questioning to recap student teacher’s knowledge and understanding of preparation of budgets.</p>	<p><b>Questioning:</b> Student teacher answers questions to recap student teacher’s knowledge and understanding of preparation of budgets.</p>				
	<p>Issues surrounding procurement</p>	<p>70 mins</p>	<table border="1" data-bbox="775 1615 1497 1872"> <tr> <td data-bbox="775 1615 1007 1872"> <p><b>Lecturette&amp; Questioning:</b> Tutor gives a brief interactive lecturette on issues surrounding the procurement function.</p> </td> <td data-bbox="1007 1615 1497 1872"> <p><b>Lecturette&amp; Questioning:</b> Student teacher part-takes in the interactive lecturette on issues surrounding the procurement function</p> </td> </tr> </table>	<p><b>Lecturette&amp; Questioning:</b> Tutor gives a brief interactive lecturette on issues surrounding the procurement function.</p>	<p><b>Lecturette&amp; Questioning:</b> Student teacher part-takes in the interactive lecturette on issues surrounding the procurement function</p>
<p><b>Lecturette&amp; Questioning:</b> Tutor gives a brief interactive lecturette on issues surrounding the procurement function.</p>	<p><b>Lecturette&amp; Questioning:</b> Student teacher part-takes in the interactive lecturette on issues surrounding the procurement function</p>				
	<p>Procurement processes</p>	<p>70 mins</p>	<table border="1" data-bbox="775 1872 1497 2098"> <tr> <td data-bbox="775 1872 1007 2098"> <p><b>discussion &amp;lecturette:</b> Tutor uses an interactive lecturette to introduce student teachers to the procurement</p> </td> <td data-bbox="1007 1872 1497 2098"> <p><b>e-learning and discussion:</b> Student teacher partakes in an interactive lecturette to understand the procurement types and processes with special emphasis on the Ghanaian procurement law.</p> </td> </tr> </table>	<p><b>discussion &amp;lecturette:</b> Tutor uses an interactive lecturette to introduce student teachers to the procurement</p>	<p><b>e-learning and discussion:</b> Student teacher partakes in an interactive lecturette to understand the procurement types and processes with special emphasis on the Ghanaian procurement law.</p>
<p><b>discussion &amp;lecturette:</b> Tutor uses an interactive lecturette to introduce student teachers to the procurement</p>	<p><b>e-learning and discussion:</b> Student teacher partakes in an interactive lecturette to understand the procurement types and processes with special emphasis on the Ghanaian procurement law.</p>				

			types and processes with special emphasis on the Ghanaian procurement law and using practical examples from school.	
	Lesson Closure	<b>20 mins</b>	Tutor uses questioning to recap the concepts learnt in the lesson	Student teacher answers questions to recap the concepts learnt in the lesson. Student teachers develops a wiki in their groups in their groups on “the potential applications of robotics in education”
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<p><b>Summary of Assessment Method:</b>  <b>Assessment for learning:</b> Wiki on “<i>the benefits of having a transparent procurement process</i>” to be added to e-portfolio.  Assesses Learning Outcomes:  <b>CLO6:</b> Demonstrate knowledge and understanding of the basic concepts managing procurement including recruitment Ghana’s Public Procurement Act (Act 663)  <b>Assessment to aim at achieving NTS:</b>  <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e</b></p>			
<b>Instructional Resources</b>	i. Smartphones ii. Laptops iii. Desktop computers iv. Tablets v. TV and Radio vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/courseera, khan academy, TESSA) vii. The iBox (CENDLOS) viii. Productivity tools ix. Subject based application software x. Instructional Laboratories (with multimedia equipment and smartboards)			
<b>Required Text (core)</b>	Holtsnider, B. & Jaffe, B. D. (2012) <i>IT Manager’s Handbook</i> (3rd Ed.) Morgan Kaufmann Publishers			
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)			
<b>CPD needs</b>	Need for seminar on public procurement 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

<b>Year of B.Ed.</b>	2	<b>Semester</b>	1	<b>Place of lesson in semester</b>	12 3 4 5 6 7 8 9 10 <b>11</b> 12
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<b>Title of Lesson</b>	Managing the IT client (Marketing)						<b>Lesson Duration</b>	<b>3 Hours</b>
<b>Lesson description</b>	In this lesson, Student teachers will examine the Services that IT offers to school how to formulate them to satisfy their stakeholders and support the school achieve their goals <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b>							
<b>Previous student teacher knowledge, prior learning (assumed)</b>	Student teachers have knowledge of the kinds of services that ICT units provide for school.							
<b>Possible barriers to learning in the lesson</b>	Some student teachers might not appreciate the ICT services provided to school.							
<b>Lesson Delivery – chosen to support students in achieving the outcomes</b>	<b>Face-to-face [ v ]</b>	<b>Practical Activity [ v ]</b>	<b>Work-Based Learning</b>	<b>Seminars [ v ]</b>	<b>Independent Study [ v ]</b>	<b>e-learning opportunities [ v ]</b>	<b>Practicum</b>	
<b>Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.</b>	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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.</p>							
<ul style="list-style-type: none"> <li><b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description</b></li> <li><b>Write in full aspects of the NTS addressed</b></li> </ul>	<p>Student teachers will:</p> <p>To give student teachers the capacity to shape ICT services that meet the needs of schools and their Build a professional record to reflect student teacher’s accomplishments, skills, experiences, learning and attributes. <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1, 3, &amp; 4</b></p>							

<ul style="list-style-type: none"> <li>Learning Outcome for the lesson, picked and developed from the course specification</li> <li>Learning indicators for each learning outcome</li> </ul>	<b>Learning Outcomes</b>		<b>Learning Indicators</b>		Identify which cross cutting issues – core and transferable skills, inclusivity, equity and addressing diversity.
	<b>CLO7:</b> Demonstrate knowledge and understanding of the basic concepts marketing management including marketing mix <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/ NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</b>		Explain some basic concepts of marketing management including the marketing mix in a written form		These strategies will respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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.
<b>Topic Title:</b>	<b>Sub-topic</b>	<b>Stage/time</b>	<b>Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.</b>		
			<b>Teacher Activity</b>	<b>Student Activity</b>	
	Recap of previous lesson	20 mins	<b>Questioning:</b> Tutor uses questioning to recap student teacher’s knowledge and understanding of preparation of budgets.	<b>Questioning:</b> Student teacher answers questions to recap student teacher’s knowledge and understanding of preparation of budgets.	
	Marketing orientation	70 mins	<b>e-learning &amp; Questioning:</b> Tutor shows a short video on the marketing orientation and uses questioning to draw out the features of the marketing orientation distinguishing it from the sales and production orientation.	<b>e-learning &amp; Questioning:</b> student teacher watches a short video on the marketing orientation and answers questions to identify the features of the marketing orientation distinguishing it from the sales and production orientation.	
	Marketing Mix	70 mins	<b>discussion &amp; lecturette:</b> Tutor uses an interactive lecturette to introduce student teachers to the marketing mix using practical examples from school to explain each element of the marketing mix. Tutor breaks student teachers into groups to describe the marketing mix for an identified an ICT service in school	<b>e-learning and discussion:</b> Student teacher partakes in an interactive lecturette to understand the marketing mix student teachers work in their groups to describe the marketing mix for an identified an ICT service in school.	
	Lesson Closure	20 mins	Tutor reviews students’ knowledge on the marketing orientation using discussion.	Student teacher discusses the concepts of marketing orientation to review their knowledge.	
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<b>Summary of Assessment Method:</b> <b>Assessment of learning:</b> write reflective notes on how the marketing mix can be used to shape ICT services provided in school.  Assesses Learning Outcomes: <b>CLO7:</b> Demonstrate knowledge and understanding of the basic concepts marketing management including marketing mix <b>Assessment to aim at achieving NTS:</b> <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e</b>				
<b>Instructional Resources</b>	i. Smartphones ii. Laptops iii. Desktop computers iv. Tablets v. TV and Radio				

	<ul style="list-style-type: none"> <li>vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/courseera, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>
<b>Required Text (core)</b>	Kotler, P. & Armstrong, G. (2017) Principles of Marketing (17th Ed. Pearson)
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)
<b>CPD needs</b>	<ul style="list-style-type: none"> <li>Need for seminar on IT services to schools</li> <li>Writing reflective notes</li> <li>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.</li> <li>Team teaching and lesson observation to improve instructional strategies &amp; practices.</li> <li>Supporting student teachers in collaborating in designing and developing a wiki.</li> </ul>



# Lesson 12

Year of B.Ed.	2	Semester	1	Place of lesson in semester	12 3 4 5 6 7 8 9 10 11 <b>12</b>
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<b>Title of Lesson</b>	IT Management Best Practices.						<b>Lesson Duration</b>	<b>3 Hours</b>
<b>Lesson description</b>	In this lesson, Student teachers will examine some of the best practices used in managing ICT services school <i>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/ NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</i>							
<b>Previous student teacher knowledge, prior learning (assumed)</b>	Student teachers are familiar with the services provided by ICT units to schools							
<b>Possible barriers to learning in the lesson</b>	Some student teachers might not appreciate that ICT units as a service provider but rather a purely technical unit							
<b>Lesson Delivery – chosen to support students in achieving the outcomes</b>	<b>Face-to-face [ v ]</b>	<b>Practical Activity [ v ]</b>	<b>Work-Based Learning</b>	<b>Seminars [ v ]</b>	<b>Independent Study [ v ]</b>	<b>e-learning opportunities [ v ]</b>	<b>Practicum</b>	
<b>Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.</b>	<p><b>Face-to-face</b> – Both teacher and student-led approaches such as discussions of varying kinds should be used.</p> <p><b>e-learning opportunities</b> -Student teachers would watch videos on YouTube/videos about responsible use of technology systems.</p> <p><b>Seminars</b> – Both individual and group presentation of projects should be encouraged.</p> <p><b>Practical Activity</b>- student teachers will review work samples of other student teachers to explain progress or barriers to learning</p> <p><b>Group work:</b> 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</p> <p><b>Independent study:</b> 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/courseera, khan academy, TESSA) to support independent study.</p>							
<ul style="list-style-type: none"> <li><b>Overarching outcome, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</b></li> <li><b>Write in full aspects of the NTS addressed</b></li> </ul>	<p>Student teachers will:</p> <p>Demonstrate an understanding of me IT best practices including Infrastructure library, ISO 2700 <i>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e/ NTECF: Pillar 1, 2 &amp; 3 crosscutting issues; Core skills, Assessment, Professional values and attitudes).</i></p>							
<ul style="list-style-type: none"> <li><b>Learning Outcome for</b></li> </ul>	<b>Learning Outcomes</b>	<b>Learning Indicators</b>			Identify which cross cutting issues – core and transferable skills, inclusivity, equity and			

<p>the lesson, picked and developed from the course specification</p> <ul style="list-style-type: none"> <li>Learning indicators for each learning outcome</li> </ul>			addressing diversity. How will these be addressed or developed?
	<p>CLO5. Demonstrate knowledge and understanding of the various system deployment models and be able to plan system deployment. <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p>	<p>5.1 Explain and plan system deployment.</p>	<p>These strategies will respond to inclusivity and equity (i.e. ICT as a tool for expanding learning to diverse learners e.g. 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</p>
	<p>CLO 6: Build a professional record to reflect student teacher's accomplishments, skills, experiences, learning and attributes. <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1, 3, &amp; 4</b></p>	<p>6.1 Build a portfolio</p>	

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
	Recap lesson on Systems deployment	15min	<b>Face-to-face:</b> Tutor/lecturer recaps previous lesson on marketing.	<b>e-learning &amp; Seminar</b> Student teachers discuss the previous lesson on marketing
	IT standards and Best practices	85 Mins	<b>e-learning</b> Shows short videos explaining what a best practice is and the various standards and best practices (e.g. ITIL ISO 27000, etc) used in ICT management. Tutor then discusses these concepts with students	<b>e-learning &amp; Seminar</b> Student teachers watch videos from YouTube on some IT standards and best practices; make notes from the videos for small group's discussion.
	Application IT standards and Best practices in school	70 Mins	<b>Practical session:</b> Tutor breaks student teachers into groups to discuss how to practices could be applied in school to improve the delivery of ICT services to the school community	<b>Practical session:</b> Student teacher discusses in their groups how these best practices and standards can be used to improve ICT services to the school community.
	Lesson Closure	20 mins	Tutor reviews maintenance (upgrade and repair) plan, deployment plans, training, Basic electronics: voltage, current, power, motors, sensors, fault detection, testing, tolerance and recovery, with student teachers to recap concepts learnt in the course.	Student teacher reviews with tutor maintenance (upgrade and repair) plan, deployment plans, training, Basic electronics: voltage, current, power, motors, sensors, fault detection, testing, tolerance and recovery, with student teachers to recap concepts learnt in the course.
<b>Lesson assessments – evaluation of learning: of, for and as learning within the lesson</b>	<p><b>Summary of Assessment Method:</b></p> <p><b>Assessment as learning:</b> Student teacher will write reflective notes on how one best practice can be used to improve ICT services provided by their STS school.</p> <p>Assesses Learning Outcomes:  <b>CLO8:</b> Demonstrate knowledge and understanding of IT management best practices and standards.  <b>Assessment to aim at achieving NTS:</b>  <b>NTS: 1b, 1c, 1e, 1f, 1g, 2c, 2e</b></p>			
<b>Instructional Resources</b>	<ul style="list-style-type: none"> <li>i. Smartphones</li> <li>ii. Laptops</li> <li>iii. Desktop computers</li> <li>iv. Tablets</li> <li>v. TV and Radio</li> <li>vi. Open Educational Resources (Including: YouTube, MOOCs-Udemy/courseera, khan academy, TESSA)</li> <li>vii. The iBox (CENDLOS)</li> <li>viii. Productivity tools</li> <li>ix. Subject based application software</li> <li>x. Instructional Laboratories (with multimedia equipment and smartboards)</li> </ul>			
<b>Required Text (core)</b>	Holtsnider, B. & Jaffe, B. D. (2012) <i>IT Manager's Handbook</i> (3rd Ed.) Morgan Kaufmann Publishers			
<b>Additional Reading List</b>	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemyetc)			
<b>CPD needs</b>	Need for seminar on IT best practices			

	<p>Writing reflective notes</p> <p>Participating in a community of practice/conferences and accessing online magazines (E-zines) &amp; journals to obtain up to date content.</p> <p>Team teaching and lesson observation to improve instructional strategies &amp; practices.</p> <p>Supporting student teachers in collaborating in designing and developing a wiki.</p>
<b>Course Assessment</b>	<p><sup>1</sup><b>Component 1: Portfolio Assessment: (30% overall score)</b></p> <ul style="list-style-type: none"> <li>• Selected items of students work (3 of them – 10% each)- 30%</li> <li>• Midterm Assessment – 20%</li> <li>• Reflective Journal – 40%</li> <li>• Organisation of subject portfolio – 10% (how it is presented/organized)</li> </ul> <p><sup>2</sup><b>Component 2: Subject Project (30% overall semester score)</b></p> <ul style="list-style-type: none"> <li>• Introduction a clear statement of aim and purpose of the project – 10%</li> <li>• Methodology: what the student teacher has done and why to achieve the purpose of the project – 20%</li> <li>• Substantive or main section – 40%</li> <li>• Conclusion – 30%</li> </ul> <p><b>Component 3: End of Semester Examination – 40% overall</b></p>

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<sup>1</sup> See rubric on Subject Portfolio Assessment in Annex 6 of NTEAP

<sup>2</sup> See rubric on Subject Project Assessment in Annex 6 of NTEAP

