PROFESSIONAL DEVELOPMENT PROGRAMME

TUTOR PROFESSIONAL DEVELOPMENT HANDBOOK: B.Ed in Initial Teacher Education ICT Year 4

HANDBOOK FOR COORDINATORS

GHANA TERTIARY EDUCATION COMMISSION

NATIONAL TEACHING COUNCIL
NTC
Building Confidence, Raising Teaching Standards

GOVERNMENT OF GHANA

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T-TEL

Transforming Teaching, Education & Learning

TUTOR PROFESSIONAL DEVELOPMENT HANDBOOK: B.Ed in Initial Teacher Education ICT Year 4

Coordinator Version

Foreword to the Year 4 Tutor Professional Development Handbook

The development of this set of Tutor Professional Development Handbooks, for Year 4 Bachelor of Education (B.Ed.) courses in Initial Teacher Education marks both an end and a beginning.

It marks an end in that this is the final set of Tutor Professional Development Handbooks to be written, bringing an end to three years of writing by teams from across the four mentoring Universities (Kwame Nkrumah University of Science and Technology, University for Development Studies, University of Ghana and University of Education, Winneba) and Colleges of Education.

It marks a beginning because the significant reforms in teacher education which these Handbooks are helping to bring about has only just begun. The first student teachers who have directly benefitted from these Handbooks entered Colleges of Education in 2019 and won't graduate until 2023. Once these B.Ed. graduates enter Ghana's basic school classrooms, I am confident that we will see a year-on-year increase in the number of teachers meeting the quality benchmarks set out in the National Teachers' Standards (NTS).

It is our intention and belief that these Handbooks will be used in Universities and Colleges of Education for many years to come and that they will play a central role in helping us to bring about a sustained transformation in our basic education system so that we achieve the goal of the Education Strategic Plan (2018-2030) that "all pupils are equipped with appropriate literacy, numeracy and social development skills to effectively transition to second cycle education."

I would like to take this opportunity to thank the Ghana Tertiary Education Commission, the UK's Foreign, Commonwealth and Development Office (FCDO) and Mastercard Foundation for their support over the past three years in making all this possible.

Robin Todd
Executive Director, T-TEL
June 2022

Year Four

Writing the weekly PD sessions: Guidance for the Subject Writing Leads (SWL).

- ***It is critical that what SWL write provides direct subject and B.Ed. specific guidance, so SL/HoD can support and scaffold tutors learning and professional development. This requires direct reference to each course manual and explanations of any areas which may be challenging.***
- The sessions need to provide *the main PD* opportunity for tutors to ensure they fully understand what they need to teach and have the opportunity to plan together to make sure the new B.Ed. courses are taught well.
- Developments since the manuals were written require SWL to ***add additional detail to PD sessions***. Specifically, this means a focus on:
    - Integrating GESI to ensure the needs of females, males and students with special education needs are well catered for
    - Integrating ICT and 21c skills to ensure students learn to use technology effectively to support their own and pupils' learning
    - National Teacher Education Assessment Policy (NTEAP)
        - the three assessment components ***for the semester*** for ***each*** course: subject project (30%), subject portfolio (30%) and end of semester examination (40%). These need to be introduced in session 1. PD writers will need to provide an example subject portfolio and project assessment components. if these are not written into the course manuals, see Appendix 1: Course Assessment Components.
        - integrating the use of continuous assessment designed to support student teacher learning in each PD session
        - I**n year four there are two assessment components associated with the STS Portfolio course: the Professional Portfolio, this is presented with evidence of the Student Teacher meeting the NTS and assessed at a post internship seminar (viva), and the Action Research Project. Tutors need to be prepared for assessing these components.**
- The PD session template provides the frame for SWL to write the guidance for the Subject Leads (SL)/HoDs on how to lead and support the professional development of tutors in the weekly sessions
- Age level specialisms. To ensure appropriate subject and age level focus for the PD sessions:
    - there will be a subject specialist writing for each subject
    - where subjects are grouped direct reference needs to be made to examples of activities in the course manuals for each subject with explanations and guidance as required
    - where there are different age levels direct reference needs to be made to the course manuals for activities for each age level
- This is the student teachers' final year and involves planning for and teaching sequences of lessons next academic year across all required subjects with regard for: the basic school curriculum GESI responsiveness, cross-cutting and transferable skills, including ICT.
- PD sessions in all subjects will need to include preparation for this final push to beginning teaching
- SL/HoD need to have details of the resources needed for the activit

Tutor PD Session

Age Level: JHS
Name of Subject/s:
1. Laboratory Management and PC Maintenance **(LM & PCM)**
Topic: Components of computer I
2. Legal and Security Issues in ICT **(LSI)**
Topic: Security fundamentals I
Year 4 **Semester 2**

Tutor PD Session for Lesson 1 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1a Introduction to the semester – in session one ➢ **Overview of subject/s age level/s to be covered in the PD sessions and guidance on grouping tutors according to the subject/s, age level/s.** ➢ **Introduction to the course manual/s**	1.1. Discuss with tutors the courses to be covered in the PD sessions for the semester. *i.e., Laboratory Management and PC maintenance (LM & PCM) as well as Legal and Security Issues in ICT (LSI).* **Note***:* These PD manuals are designed to equip tutors handling student teachers offering the JHS specialism in ICT with requisite skills to; ➢ *enable them provide understanding of the*	1.1 Discuss of courses to be covered in the PD sessions for the semester. *i.e., Laboratory Management and PC maintenance (LM & PCM) as well as Legal and Security Issues in ICT (LSI).* **Note***:* These PD manuals are designed to equip tutors handling student teachers offering the JHS specialism in ICT with requisite skills to; ➢ *enable them provide understanding of the*	20 mins

➢ **Overview of course learning outcomes** ➢ **Introduction to the two continuous assessment components to be undertaken in each subject during the semester (See Course Assessment Components Appendix NB in subjects where there are no assessment components in the course manuals examples will need to be provided by the SWL for the SL/HoD.** **1b Introduction to the session** ➢ Review prior learning Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➢ Overview of content and identification of any distinctive	*fundamentals of information security and to introduce student teachers to the management of computer laboratories.* ➢ *teach compatibility issues relating to hardware specifications that are required to run operating systems and various application programs to the student teachers.* 1.2. Ask tutors to read the course description, the purpose of the course manuals and indicate how they are related to student teachers' relevant previous knowledge for whole group discussion. 1.3. Ask Tutors to write the course learning outcomes (CLOs) from the course manuals for discussion. E.g., **LSI** CLO1: Understand the principles of Information security concepts. (NTS 2b, 2c, 3b, 3c, 3d, 3e, 3h, 3i, 3k, 3n, 3p NTECF: Pillars 1, 2 & 3, crosscutting issues; Core skills, Assessment, Professional values and attitudes) *CLI 1:* Explain Information security concepts. ***LM & PCM*** *CLO 1:* Identify computer systems/subsystems and	*fundamentals of information security and to introduce student teachers to the management of computer laboratories.* ➢ *teach compatibility issues relating to hardware specifications that are required to run operating systems and various application programs to the student teachers.* 1.2 Read the course description, the purpose of the course manuals and indicate how they are related to student teachers' relevant previous knowledge for whole group discussion. 1.3 Write the course learning outcomes (CLOs) from the course manuals for discussion. E.g., **LSI** CLO1: Understand the principles of Information security concepts. (NTS 2b, 2c, 3b, 3c, 3d, 3e, 3h, 3i, 3k, 3n, 3p NTECF: Pillars 1, 2 & 3, crosscutting issues; Core skills, Assessment, Professional values and attitudes) *CLI 1:* Explain Information security concepts. ***LM & PCM*** *CLO 1:* Identify computer systems/subsystems and	

aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	discuss their functions and interactions. CLI 1: Explain the functions of the various components of a computer. 1.4. In pairs, ask tutors to discuss the two assessment components for the lesson. (Subject portfolio and subject project). **E.g.** **Subject Portfolio** Create e-portfolio to contain a preventive and corrective maintenance plan. **Subject Project** I. Student teachers to install and configure operating systems and device drivers NOTE: Revise with tutors the Course Assessment Components. That is: Overall weighting of Subject project = 30% Weighting of individual parts of project out of 100 • Introduction – 10 • Methodology – 20 • Substantive section – 40 • Conclusion – 30 Overall weighting of subject portfolio = 30% Weighting of individual parts of portfolio out of 100 i(a). Each of the three (3) items selected by the student teacher is 30 % (90%).	discuss their functions and interactions CLI 1: Explain the functions of the various components of a computer 1.4 In pairs, discuss the two assessment components for the lesson. (Subject portfolio and subject project). **E.g.** **Subject Portfolio** Create e-portfolio to contain a preventive and corrective maintenance plan. **Subject Project** I. Student teachers to install and configure operating systems and device drivers	

	i(b) Presentation and organisation of portfolio 10%. OR ii(a). Each of the two (2) items selected by the student teacher is 30 % (60%). ii(b)Mid semester assessment 30% ii(c)Presentation and organisation of portfolio 10% **Introduction to the lesson** 1.5 Ask tutors to review the previous lessons learnt in Year 3 semester 2 PD sessions i.e., Technology Leadership and Management. E.g., IT Management Best Practices, and how they applied them in their teaching. 1.6 Ask tutors to: i. Read the introductory sections of lesson 1 up to the learning outcomes and their corresponding indicators individually and then discuss in pairs (mixed pairs where applicable). *E.g.,* ***LM & PCM*** *This lesson focuses on the characteristics of the computer system unit. Student teachers will have an opportunity to examine the basic building blocks of the computer system unit*.	**Introduction to the lesson** 1.5 Review the previous lessons learnt in Year 3 semester 2 PD sessions i.e., Technology Leadership and Management. E.g., IT Management Best Practices, and how you applied them in your teaching. 1.6 i. Read the introductory sections of lesson 1 up to the learning outcomes and their corresponding indicators individually and then discuss in pairs (mixed pairs where applicable). *E.g.,* ***LM & PCM*** *This lesson focuses on the characteristics of the computer system unit. Student teachers will have an opportunity to examine the basic building blocks of the computer system unit*.	

	LSI *In this lesson, Student teachers will be introduced to security fundamentals I.* **Distinctive Aspects** 1.7 Ask tutors to: i. Write down the distinctive aspects of the lessons from the course manual. e.g., ***LM & PCM*** Computer systems/subsystems. **LSI** Information Security Principles ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** System Unit and CPU **LSI** Confidentiality, Integrity and Availability *NB: Remind tutors to plan for their teaching as they go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	**LSI** *In this lesson, Student teachers will be introduced to security fundamentals I.* **Distinctive Aspects** 1.7 i. Write down the distinctive aspects of the lessons from the course manual. e.g., ***LM & PCM*** Computer systems/subsystems. **LSI** Information Security Principles ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** System Unit and CPU **LSI** Confidentiality, Integrity and Availability *NB: Plan for your teaching as you go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	
As this course is dealing with supporting and/or assessing the Professional Teaching Portfolio Development and/or the Classroom Enquiry and Action	1.9 Ask tutors to i. Brainstorm the Professional Teaching Portfolio (PTP) Development and the Action Research Project Report writing. e.g., Professional teaching portfolio as evidence of student teachers' progress	1.9. i. Brainstorm the Professional Teaching Portfolio (PTP) Development and the Action Research Project Report writing. e.g., Professional teaching portfolio as evidence of student teachers' progress	

Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.	towards being a teacher as a starting point for continuous professional development (CPD), including their Student Reflective Journal (SRJ) with evaluations of their teaching and target setting for personal and professional development ii. Take a lead role and discuss with tutors the development of components of the PTP and Action Research report writing. E.g., a. Advising the student teachers to select the artefacts they have collected that are representative of knowledge gained or depicting something unique and start to develop their professional teaching portfolio. b. Guiding the student teacher on how to file the artefacts collected. **Refer to STS Year Three School Placement Handbook.** **Table 8.2.7.2 pg. 117**.	towards being a teacher as a starting point for continuous professional development (CPD), including their Student Reflective Journal (SRJ) with evaluations of their teaching and target setting for personal and professional development ii. Discuss with your colleagues the development of components of the PTP and Action Research report writing. E.g., a. Advising the student teachers to select the artefacts they have collected that are representative of knowledge gained or depicting something unique and start to develop their professional teaching portfolio. b. Guiding the student teacher on how to file the artefacts collected. **Refer to STS Year Three School Placement Handbook.** **Table 8.2.7.2 pg. 117**.	
For each session remember this is the final semester before Students start teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc	1.10 Ask tutors to identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., a. Embedding videos into lessons b. Giving equal opportunities to both gender when teaching	1.10 Identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., a. Embedding videos into lessons b. Giving equal opportunities to both gender when teaching	

	c. Promoting problem solving skills like troubleshooting a PC.	c. Promoting problem solving skills like troubleshooting a PC	
2 Concept Development (New learning likely to arise in lesson/s): ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors	**Concept Development** 2.1 Ask tutors to identify the concepts in lesson 1 of the course manuals for discussion. I.e., **LSI** Security fundamentals I **LM & PCM** Components of computer I 2.2 Ask tutors to write a possible barrier in learning the concept above for discussion. *E.g.,* **LSI** Some student teachers might not have had knowledge and understanding of Information Security in Education and its impact on teaching and learning. **LM & PCM** Large class sizes in some colleges 2.3 Ask tutors to identify appropriate teaching strategies that can best explain the new concepts identified. *E.g., Discovery learning: Allowing students maximum freedom within a resource-rich environment to 'discover' answers to challenges. It requires students to build upon prior*	**Concept Development** 2.1 Identify the concepts in lesson 1 of the course manuals for discussion. I.e., **LSI** Security fundamentals I **LM & PCM** Components of computer I 2.2 Write a possible barrier in learning the concept above for discussion. *E.g.,* **LSI** Some student teachers might not have had knowledge and understanding of Information Security in Education and its impact on teaching and learning. **LM & PCM** Large class sizes in some colleges 2.3 Identify appropriate teaching strategies that can best explain the new concepts identified. *E.g., Discovery learning: Allowing students maximum freedom within a resource-rich environment to 'discover' answers to challenges. It requires students to build upon prior knowledge and use*	15 mins

	knowledge and use resources available in the environment to increase their own knowledge.	*resources available in the environment to increase their own knowledge.*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit* links to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use	**Planning for teaching, learning and assessment activities** 3.1. In pairs, ask tutors to watch the YouTube videos below on any internet enabled device available. **LSI** – Information Security Principles https://www.youtube.com/watch?v=6UEiQ9vUGWo **LM &PCM** – The system board https://youtu.be/dpf3BvZyVT0 3.1.1 Ask tutors to discuss the content of the videos in relation to the teaching and learning activities in the course manuals. 3.2 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** The pros and cons in information security principles ***LM &PCM*** *Differences between Processors and Memories* 3.3. Ask tutors to discuss how the different activities would be carried out in both CoE and the Basic	**Planning for teaching, learning and assessment activities** 3.1. In pairs, watch the YouTube videos below on any internet enabled device available. **LSI** – Information Security Principles https://www.youtube.com/watch?v=6UEiQ9vUGWo **LM &PCM** – The system board https://youtu.be/dpf3BvZyVT0 3.1.1 Discuss the content of the videos in relation to the teaching and learning activities in the course manuals. 3.2 Note areas that require clarification and/or contribution. *E.g.,* ***LSI*** The pros and cons in information security principles ***LM &PCM*** *Differences between Processors and Memories* 3.3. Discuss how the different activities would be carried out in both CoE and the Basic School Curriculum	

continuous assessment to support student teacher learning ➢ Resources: o links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, YouTube, physical resources, power point; how they should be used. Consideration needs to be given to local availability o guidance on any power point presentations, TLM or other resources which need to be developed to support learning ➢ Tutors should be expected to have a plan for the next lesson	School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 1. *E.g.,* ***LSI*** *Student teachers explain Information security concepts*. ***LM &PCM*** *Student teachers explain* the *functions of the various components of a computer* 3.4. In pairs or small groups, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Equal representation of both gender of different ethnicity and mixed ability grouping as appropriate.* 3.5 Ask tutors to read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g., *Presentation of individual reflective notes on analysis of the videos with the links:* **LSI -** Information Security Fundamentals *https://youtu.be/bNhIfHhrklo*	(BSC) to achieve the LOs and the LIs of the course manual for lesson 1. *E.g.,* ***LSI*** *Student teachers explain Information security concepts*. ***LM &PCM*** *Student teachers explain* the *functions of the various components of a computer* 3.4. In pairs or small groups, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Equal representation of both gender of different ethnicity and mixed ability grouping as appropriate.* 3.5 Read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g., *Presentation of individual reflective notes on analysis of the videos with the links:* **LSI -** Information Security Fundamentals ***https://youtu.be/bNhIfHhrklo***	

for student teachers	**LM &PCM -** Components of Computer System *https://youtu.be/A1LwJRYiaho* **Note** Encourage tutors to ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). Remind student teachers to use either concept maps, or multimedia for the presentations 3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards), Videos *Make sure the resources are enough and appropriate for all learners (especially people with SEN).* 3.7. Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Security fundamental I **LM &PCM** Computer Components I	**LM &PCM -** Components of Computer System ***https://youtu.be/A1LwJRYiaho*** **Note** Ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). Remind student teachers to use either concept maps, or multimedia for the presentations 3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards), Videos *Make sure the resources are enough and appropriate for all learners (especially people with SEN).* 3.7. Brainstorm a plan that will be appropriate for the next lesson: **LSI** Security fundamental II **LM &PCM** Computer Components II	

4. Evaluation and review of session: a. Tutors need to identify critical friends to observe lessons and report at next session b. Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Ask tutors to identify any outstanding issues relating to lesson one from the course manual for clarification 4.3 Remind tutors to read lesson 2 from the PD manual and find relevant materials for the next session.	**Evaluation and review of session** 4.1 Identify a critical friend to sit in your class during lesson and report on observation during the next PD session. 4.2 Identify any outstanding issues relating to lesson one from the course manual for clarification 4.3 Read lesson 2 from the PD manual and find relevant materials for the next session.	15 mins

Tutor PD Session

Age Level: JHS

NAME of Subject/s:

1. Laboratory Management and PC Maintenance **(LM & PCM)**

Topic: Components of the computer II

2. Legal and Security Issues in ICT **(LSI)**

Topic: security fundamentals II

Year 4

Semester 2

Tutor PD Session for Lesson 2 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ A critical friend to share findings for a short discussion and lessons learned ➢ Reading and discussion of the introductory sections of the lesson up to and including	**Introduction to the session** ***Start with an icebreaker*** 1.1 Using questioning, engage tutors in a discussion on systems boards, processors and memory to recap knowledge from previous PD Session (Lesson 1) and state how useful it was on the lesson taught. 1.2 Invite the critical friend who observed Lesson 1 to share their experiences and	**Introduction to the session** ***Start with an icebreaker*** 1.1 Discuss the previous lessons on systems boards, processors and memory to recap knowledge from previous PD Session (Lesson 1) and state how useful it was on the lesson taught. 1.2 As a critical friend who observed Lesson 1, share your experiences and the	20 mins

learning outcomes and indicators ➢ Overview of content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	the impacts on their facilitating in class. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 2 in the course manual and indicate how they are related to student teachers' relevant previous knowledge. **Distinctive Aspect** 1.4. Ask tutors to be in groups of two (where applicable) and identify the distinctive aspects of the lesson 2 from the course manuals for discussion. E.g., **LSI - Security Concepts** ➢ Vulnerabilities ➢ Threats ➢ Threat Actors ➢ Exploits ➢ Risk **LM & PCM - Components of computer II** i. Disk Drives ii. Installation and Support of Hard Drives iii. Installation and support of Power Supply units	impact on your facilitating in class 1.3 Read the introduction, lesson description and the purpose of lesson 2 in the course manual and indicate how they are related to student teachers' relevant previous knowledge. **Distinctive Aspect** 1.4 In groups of two (where applicable) identify the distinctive aspects of the lesson 2 from the course manuals for discussion. E.g., **LSI - Security Concepts** ➢ Vulnerabilities ➢ Threats ➢ Threat Actors ➢ Exploits ➢ Risk **LM & PCM - Components of computer II** i. Disk Drives ii. Installation and Support of Hard Drives iii. Installation and support of Power Supply units	
As this course is dealing with supporting and/or assessing the Professional Teaching Portfolio Development and/or the Classroom Enquiry and Action Research Project Report	1.5 Ask and discuss with Tutors appropriate interventions that can be used to address identified learning needs of learners in the classroom. **e.g.,** *i. Guiding the student teacher on how to write a report and include videos or pictures of interventions*	1.5 Discuss the appropriate interventions that can be used to address identified learning needs of learners in the classroom. **e.g.,** *i. Guiding the student teacher on how to write a report and include videos or pictures of interventions*	

writing, tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.	*they used to address the learners' needs* *ii. Task them to include the report in their portfolio.* ***Refer to Table 7.2.2b: of the STS placement hand book page 40:***	*they used to address the learners' needs.* *ii. Task them to include the report in their portfolio*. ***Refer to Table 7.2.2b: of the STS placement hand book page 40:***	
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.6. Ask tutors to be in pairs and identify ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning in the classroom. e.g., *a. Delegating roles to females and males equally. (NTS 1c)* *b. the use of PowerPoint software to deliver lessons.* *c. Promoting creativity like troubleshooting a PC.*	1.6. In pairs identify ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning in the classroom. e.g., *a. Delegating roles to females and males equally. (NTS 1c).* *b. the use of PowerPoint software to deliver lessons.* *c. Promoting creativity like troubleshooting a PC.*	
2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD	**Concept Development** 2.1 Using brainstorming, ask tutors to write at least two major concepts in the lesson from the course manuals and share with the whole group. e.g., **LSI** **Security fundamental II** ➢ Vulnerabilities ➢ Threats **LM & PCM - Components of computer II** i. Disk Drives ii. Installation and Support of Hard Drives 2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed 2.1.	**Concept Development** 2.1 Using brainstorming, write at least two major concepts in the lesson from the course manuals and share with the whole group. e.g., **LSI** **Security fundamental II** ➢ Vulnerabilities ➢ Threats **LM & PCM - Components of computer II** i. Disk Drives ii. Installation and Support of Hard Drives 2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed in 2.1.	15 mins

NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.	E.g., **LSI** Some student teachers might not have had knowledge and understanding of Security Concepts in Education and its impact on teaching and learning **LM & PCM** Negative views of ICT and large class sizes in some colleges 2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified E.g., *Discovery learning: Allowing students maximum freedom within a resource-rich environment to 'discover' answers to challenges. It requires students to build upon prior knowledge and use resources available in the environment to increase their own knowledge.*	E.g., **LSI** Some student teachers might not have had knowledge and understanding of Security Concepts in Education and its impact on teaching and learning. **LM & PCM** Negative views of ICT and large class sizes in some colleges 2.3 Identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified E.g., *Discovery learning: Allowing students maximum freedom within a resource-rich environment to 'discover' answers to challenges. It requires students to build upon prior knowledge and use resources available in the environment to increase their own knowledge.*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas	**Planning for teaching, learning and assessment activities** 3.1. Ask Tutors to read through the teaching and learning activities outlined in the lesson from the course manual individually for group whole discussion. E.g., **LSI**	**Planning for teaching, learning and assessment activities** 3.1. Read through the teaching and learning activities outlined in the lesson from the course manual individually for whole group discussion. E.g., **LSI**	40 mins

where tutors may require clarification ➢ Noting opportunities for making *explicit links* to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➢ Resources: links to the existing PD Themes, for example, action research, questioning and to other external	Tutor shows a video of the types of hard drives and engages the student teachers in a discussion of the types of hard drives identified from the videos and/or images shown to them 3.2 Ask tutors to watch a video on: **LSI** Vulnerabilities in ICT and under which circumstances recommendations can be made. https://youtu.be/2VaPTIuRs4k **LM & PCM** How a Hard disk works using the link below https://youtu.be/wteUW2sL7bc 3.2.1 *Ask tutors to discuss their findings with the larger group* 3.3 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** *The difference between threats and vulnerabilities* https://youtu.be/wKL5o4NEWr4 **LM &PCM** Managing Hard drives as well as installing and managing of power supply units.	Tutor shows a video of the types of hard drives and engages the student teachers in a discussion of the types of hard drives identified from the videos and/or images shown to them 3.2 Watch a video on: **LSI** Vulnerabilities in ICT and under which circumstances recommendations can be made https://youtu.be/2VaPTIuRs4k **LM & PCM** How a hard disk works using the link https://youtu.be/wteUW2sL7bc 3.2.1 Discuss your findings with the larger group 3.3 Note areas that require clarification and/or contribution. E.g., **LSI** The difference between threats and vulnerabilities https://youtu.be/wKL5o4NEWr4 **LM &PCM** Managing Hard drives as well as installing and managing power supply units	

reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability. ➢ Tutors should be expected to have a plan for the next lesson for student teachers	3.4. Lead tutors to discuss in groups how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for the lesson. *E.g.,* *Tutor tasks student teachers to write reflective notes on the lesson treated.* 3.5 Using think-pair- share, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. *E.g., Males and females taking turns in leading roles and Inclusivity.* 3.6 Ask tutors to identify any 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school leaners to develop these skills. E.g., *The use of smartphones to prepare and present lessons*. 3.7 Ask tutors to read and discuss the assessment activities in the manual and identify areas in the lesson that can be used for assessment in alignment with NTEAP related activities. *E.g., Explain the concepts of Component of computer II and security fundamentals II.*	3.4. Discuss in groups how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for the lesson. *E.g.,* *Tutor tasks student teachers to write reflective notes on the lesson treated.* 3.5 Using think-pair- share, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. *E.g., Males and females taking turns in leading roles and Inclusivity.* 3.6 identify any 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school leaners to develop these skills. E.g., *The use of smartphones to prepare and present lessons*. 3.7 Read and discuss the assessment activities in the manual and identify areas in the lesson that can be used for assessment in alignment with NTEAP related activities. *E.g., Explain the concepts of Component of computer II and security fundamentals II.*	

	NB: Remind tutors to focus on *subject project and the subject portfolio of the NTEAP document.* 3.8 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom. *E.g., a YouTube Video, Coursera, Khan Academy, Projector, Laptop (PC)* 3.9. Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Security fundamentals II **LM &PCM** Components of the computer II *Remind Tutors to have a concrete plan for teaching the next lesson for student teachers*	NB: Remember to focus on *subject project and the subject portfolio of the NTEAP document.* 3.8 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom. *E.g., a YouTube Video, Coursera, Khan Academy, Projector, Laptop (PC)* 3.9. Brainstorm a plan that will be appropriate for the next lesson: **LSI** Security fundamentals II **LM &PCM** Components of the computer II *Remember to have a concrete plan for teaching the next lesson to student teachers*	
4. Evaluation and review of session: ➢ Tutors should Identifying critical friends to observe lessons and report at next session ➢ Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1. Individually, let tutors identify any outstanding issues relating to the lesson for clarification 4.2 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session 4.3 Ask tutors to read lesson 3 from the PD manual and find relevant	**Evaluation and review of session** 4.1. Identify any outstanding issues relating to the lesson for clarification. 4.2 Identify a critical friend to sit in your class during lesson and report on observation during the next PD session 4.3 Read lesson 3 from the PD manual and find	15 mins

	materials for the next session.	relevant materials for the next session.	

Tutor PD Session

Age Levels: JHS

Name of Subject/s:

1. Laboratory Management and PC maintenance **(LM & PCM)**

Topic: Building/Upgrading a computer

2. Legal and Security Issues in ICT **(LSI)**

Topic: Access Control Fundamentals (introduction to Accountability process) I

Year 4

Semester 2

Tutor PD Session for Lesson 3 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➢ Overview of content and	**Introduction to the lesson** 1.1 Using questioning, ask tutors to review and reflect on the previous PD Session (Lesson 2) and how useful it was on lessons taught. i.e., **LM & PCM** Components of computer II **LSI** Security fundamental II	**Introduction to the lesson** 1.1 Using questioning, review and reflect on the previous PD Session (Lesson 2) and how useful it was on lessons taught. i.e., **LM & PCM** Components of computer II **LSI** Security fundamental II	20 mins

identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	1.2 Invite the critical friend who observed Lesson 2 to share their experiences and the impacts on their facilitating in class. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 4 in the course manual and indicate how they are related to student teachers' relevant previous knowledge *E.g.,* ***LM & PCM*** *This lesson is to expose student teachers to and help them understand disk drives and power supply units and be able to choose which ones are suitable for use in the school system.* **LSI** *In this lesson, student teachers will examine the various security concepts in Information Technology* *.* **Distinctive Aspects** 1.4. Ask tutors to be in pairs and i. identify the distinctive aspects of the lesson. e.g., ***LM & PCM*** Disk Drives **LSI** Vulnerabilities ii. Identify areas that need further clarification in the lesson. E.g.,	1.2 As a critical friend who observed Lesson 2, share your experiences and the impact on your facilitating in class 1.3 Read the introduction, lesson description and the purpose of lesson 4 in the course manual and indicate how they are related to student teachers' relevant previous knowledge *E.g.,* ***LM & PCM*** *This lesson is to expose student teachers to and help them understand disk drives and power supply units and be able to choose which ones are suitable for use in the school system.* **LSI** *In this lesson, student teachers will examine the various security concepts in Information Technology* *.* **Distinctive Aspects** 1.4. Pair with a colleague and i. identify the distinctive aspects of the lesson. e.g., ***LM & PCM*** Disk Drives **LSI** Vulnerabilities ii. Identify areas that need further clarification in the lesson. E.g.,	

	LM & PCM Hard disk drive support **LSI** Threat Actors and Exploits *NB: Remind tutors to plan for their teaching as they go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	***LM & PCM*** Hard disk drive support **LSI** Threat Actors and Exploits *NB: Plan for your teaching as y go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	
As this course is dealing with supporting and or assessing the Professional Teaching Portfolio Development or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Intern Seminar.	1.5 Take a lead role and discuss with tutors the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., a. Reflecting with the student teachers their experiences from the school on issues on GESI and the use of ICT tools and how these influence their values of teaching and learning. b. Guiding the student teacher on how to collect data on learners during lesson delivery **Refer to STS Year Three School Placement Handbook.** **Table 8.2.7.2 pg. 93, 115**.	1.5 Discuss together the development of components of the PTP and Action Research report writing by the student teachers. E.g., a. Reflecting with the student teachers their experiences from the school on issues on GESI and the use of ICT tools and how these influence their values of teaching and learning. b. Guiding the student teacher on how to collect data on learners during lesson delivery **Refer to STS Year Three School Placement Handbook.** **Table 8.2.7.2 pg. 93, 115**.	
For each session remember this is the final semester before Students start teaching provide prompts to help support this transition for	1.6 Ask tutors to identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning.	1.6 Identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning.	

planning and give regard for GESI, CCI, ICT etc	e.g., a. Recording students' readings, b. Giving equal opportunities and treatments to all learners including the marginalised.	e.g., a. Recording students' readings, b. Giving equal opportunities and treatments to all learners including the marginalised.	
2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors	**Concept Development** 2.1 Ask tutors to identify the concepts in lesson 3 of the course manuals for discussion. I.e., **LSI** Access Control Fundamentals (introduction to Accountability process) I **LM & PCM** Building/Upgrading a computer 2.2 Ask tutors to write a possible barrier in learning the concepts (Access Control Fundamentals and Building/ Upgrading a computer) above for discussion. *E.g.,* **LSI** *Some student teachers might not have had knowledge and understanding of Access control fundamentals in ICT and its impact on teaching and learning.* **LM & PCM** *Student teachers may have had very limited prior experience of using ICT tools* 2.3 Ask tutors to identify appropriate teaching strategies that can best	**Concept Development** 2.1 Identify the concepts in lesson 3 of the course manuals for discussion. I.e., **LSI** Access Control Fundamentals (introduction to Accountability process) I **LM & PCM** Building/Upgrading a computer 2.2 Write a possible barrier in learning the concepts (Access Control Fundamentals and Building/ Upgrading a computer) above for discussion. *E.g.,* **LSI** *Some student teachers might not have had knowledge and understanding of Access control fundamentals in ICT and its impact on teaching and learning.* **LM & PCM** *Student teachers may have had very limited prior experience of using ICT tools* 2.3 Identify appropriate teaching strategies that can	15 mins

	explain the new concepts identified. *E.g., Modelled Teaching: Modelled teaching is an instructional strategy that involves the teacher 'showing' students how to do a task. The teacher shows the task while also breaking it down into small steps. This helps students to see how to complete the task.*	best explain the new concepts identified. *E.g., Modelled Teaching: Modelled teaching is an instructional strategy that involves the teacher 'showing' students how to do a task. The teacher shows the task while also breaking it down into small steps. This helps students to see how to complete the task.*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit* links to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous	**Planning for teaching, learning and assessment activities** 3.1. Ask tutors to watch the YouTube videos with the links below **LSI** – Access Control Fundamentals https://youtu.be/XvR6ww7F54w **LM &PCM** – Building/Upgrading a computer https://www.youtube.com/watch?v=eYtSQkd7dQk 3.1.1 Ask Tutors to read through the teaching and learning activities outlined in lesson 3 of the courses manuals and relate it to the video watched for group discussion. 3.2 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,*	**Planning for teaching, learning and assessment activities** 3.1. Watch the YouTube videos with the links below **LSI** – Access Control Fundamentals https://youtu.be/XvR6ww7F54w **LM &PCM** – Building/Upgrading a computer https://www.youtube.com/watch?v=eYtSQkd7dQk 3.1.1 Read through the teaching and learning activities outlined in lesson 3 of the courses manuals and relate it to the video watched for group discussion. 3.2 Note areas that require clarification and/or contribution. *E.g.,*	

assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning ➢ Resources: ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Youtube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ➢ Tutors should be expected to have a plan for the next lesson	***LSI*** *Identification* ***LM &PCM*** PCI Slots, SATA 3.3. Ask tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 3. *E.g.,* ***LSI*** *Student teachers explain different security control systems to protect information systems.* ***LM &PCM*** *Student teachers present individual reflective notes on the process of assembling a computer* 3.4. In pairs or small groups, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *NTS 3f: Pays attention to all learners, especially girls and students with Special Educational needs, ensuring their progress, 1a.* 3.5 Ask tutors to read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be	***LSI*** *Identification* ***LM &PCM*** PCI Slots, SATA 3.3. Discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 3. *E.g.,* ***LSI*** *Student teachers explain different security control systems to protect information systems.* ***LM &PCM*** *Student teachers present individual reflective notes on the process of assembling a computer* 3.4. In pairs or small groups, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *NTS 3f: Pays attention to all learners, especially girls and students with Special Educational needs, ensuring their progress, 1a.* 3.5 Read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment	

for student teachers	used for assessment especially on NTEAP related activities. E.g., *Presentation of individual reflective notes on analysis of the videos with the links:* **LSI –** Access Control Fundamentals *https://youtu.be/bNhIfHhrklo* **LM &PCM -** Building/Upgrading a computer https://www.youtube.com/watch?v=yGsc7x88KOI **Note** Encourage tutors to ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). 3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards) as well as Videos *Make sure the resources are enough and appropriate for all learners (especially people with SEN).*	especially on NTEAP related activities. E.g., *Presentation of individual reflective notes on analysis of the videos with the links:* **LSI –** Access Control Fundamentals *https://youtu.be/bNhIfHhrklo* **LM &PCM -** Building/Upgrading a computer https://www.youtube.com/watch?v=yGsc7x88KOI **Note** Encourage tutors to ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). 3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards) as well as Videos *Make sure the resources are enough and appropriate for all learners (especially people with SEN).*	

	3.7 Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Access Control Fundamentals (introduction to Accountability process) I **LM &PCM** Building/Upgrading a computer	3.7 Brainstorm a plan that will be appropriate for the next lesson: **LSI** Access Control Fundamentals (introduction to Accountability process) I **LM &PCM** Building/Upgrading a computer	
4. Evaluation and review of session: a. Tutors need to identify critical friends to observe lessons and report at next session b. Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Ask tutors to identify any outstanding issues relating to lesson 3 from the course manual for clarification 4.3 Remind tutors to read lesson 4 from the PD manual and find relevant materials for the next session.	**Evaluation and review of session** 4.1 Identify a critical friend to sit in your class during lesson and report on observation during the next PD session. 4.2 Identify any outstanding issues relating to lesson 3 from the course manual for clarification 4.3 Read lesson 4 from the PD manual and find relevant materials for the next session.	15 mins

Tutor PD Session

Age Levels: JHS

Name of Subject/s:

1. Laboratory Management and PC maintenance **(LM & PCM)**
   Topic: Software Installation I
2. Legal and Security Issues in ICT **(LSI)**
   Topic: Access Control Fundamentals (Authentication types) II

Age Levels/s:

Name of Subject/s:

Year 4

Semester 2

Tutor PD Session for Lesson 4

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ A critical friend to share findings for a short discussion and lessons learned ➢ Reading and discussion of the introductory sections of the lesson up to and including learning	**Introduction to the session** 1.1 Ask tutors to write any new thing they learnt in their last PD session on lesson 3. i.e., **LSI**: Access Control I **LM & PCM**: Assembling components 1.1.1 Ask tutors to share what they have written for the whole group discussion.	**Introduction to the session** 1.1 Write any new thing you learnt in your last PD session on lesson 3. i.e., **LSI**: Access Control I **LM & PCM**: Assembling components 1.1.1 Share what you have written for the whole group discussion.	20 mins

outcomes and indicators ➢ Overview of content and identification of any **distinctive aspects** of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	1.2 Invite the tutor who observed Lesson 3 to share their experiences with the group. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 4 in the course manuals and indicate how they are related to student teachers' relevant previous knowledge*.* E.g., **LSI:** Student teachers will explore Authentication types under Access control fundamentals. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).** **LM & PCM:** Student teachers will be exposed to how to configure and install softwares on a computer system. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).** **Distinctive Aspect** 1.4. Ask tutors to write any one (1) distinctive aspect of the lesson for discussion. i.e.	1.2 As a critical friend who observed Lesson 3, share your experiences and the impact on your facilitating in class 1.3 Read the introduction, lesson description and the purpose of lesson 4 in the course manual and indicate how they are related to student teachers' relevant previous knowledge*.* E.g., **LSI:** Student teachers will explore Authentication types under Access control fundamentals. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).** **LM & PCM:** Student teachers will be exposed to how to configure and install softwares on a computer system. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).** **Distinctive Aspect** 1.4. Write any one (1) distinctive aspect of the lesson for discussion. i.e.	

	LSI: Authentication **LM & PCM**: Formatting and Partitioning 1.4.1 Ask tutors to share their responses with a colleague.	**LSI**: Authentication **LM & PCM**: Formatting and Partitioning 1.4.1 Ask tutors to share their responses with a colleague.	
As this course is dealing with supporting and or assessing the Professional Teaching Portfolio Development or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.	1.5 Ask tutors to remind student teacher to: use the ideas generated to prepare a template for building a professional teaching portfolio. 1.6 Remind the student teacher to observe the entire class during lesson deliveries and closely take note of learners with special learning needs using observation guide they have designed.	1.5 Remind student teachers to use the ideas generated to prepare a template for building a professional teaching portfolio. 1.6 Remind the student teachers to observe the entire class during lesson deliveries and closely take note of learners with special learning needs using observation guide they have designed.	
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.7 Ask tutors to encourage student teacher to make a recording of a lesson they delivered with the help of ICT tools (e.g., your phone, a video camera, an audio tape recorder).	1.7 Encourage student teachers to make a recording of a lesson they delivered with the help of ICT tools (e.g., your phone, a video camera, an audio tape recorder).	
2 Concept Development (New learning likely to arise in lesson/s): ➢ Identification and discussion of new learning, potential barriers to learning for student teachers	**Concept Development** 2.1 Taking a leading role, engage tutors in a discussion on the major concepts in the lesson: *e.g.,* **LSI:** Authentication.	**Concept Development** 2.1 Discussion the major concepts in the lesson: *e.g.,* **LSI:** Authentication.	15 mins

or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.	**LM & PCM:** Formatting and partitioning of drives. 2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed above. *E.g.,* Some student teachers might not have had knowledge and understanding of Authentication types under Access control fundamentals and its impact on teaching and learning. 2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified. *E.g., Using a demonstration to show a student teacher how a mobile phone authenticates a user.*	**LM & PCM:** Formatting and partitioning of drives. 2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed above. *E.g.,* Some student teachers might not have had knowledge and understanding of Authentication types under Access control fundamentals and its impact on teaching and learning. 2.3 Identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified. *E.g., Using a demonstration to show a student teacher how a mobile phone authenticates a user.*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification	**Planning for teaching, learning and assessment activities** 3.1 Ask tutors to read the teaching and learning activities of lesson 4 from the course manual. E.g., **LSI**: Tutor shows a video on Authentication by Knowledge. **LM & PCM**:	**Planning for teaching, learning and assessment activities** 3.1 Read the teaching and learning activities of lesson 4 from the course manual. E.g., **LSI**: Show a video on Authentication by Knowledge. **LM & PCM**:	40 mins

➢ Noting opportunities for making *explicit links* to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➢ Resources: links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability	Tutor introduces student teachers to the formatting and partitioning drives and why it is necessary to format. 3.2 Ask tutors to identify any aspect that needs clarification. e.g., **LSI:** Authentication **LM & PCM** Formatting 3.3 In groups of at least 2, lead tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of lesson 10 from the course manuals. e.g., **LSI:** Student teacher watches video and answers questions about what Authentication Ownership entails. **LM & PCM:** Student teachers work in smaller groups to discuss the aspects of formatting and partitioning drives assigned to them and give a presentation to the class. 3.3 Ask tutors to discuss how GESI issues related to the teaching and	Introduces student teachers to the formatting and partitioning drives and why it is necessary to format. 3.2 Identify any aspect that needs clarification. e.g., **LSI:** Authentication **LM & PCM** Formatting 3.3 In groups of at least 2 discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of lesson 10 from the course manuals. e.g., **LSI:** Student teacher watches video and answers questions about what Authentication Ownership entails. **LM & PCM:** Student teachers work in smaller groups to discuss the aspects of formatting and partitioning drives assigned to them and give a presentation to the class. 3.3 Discuss how GESI issues related to the teaching and learning	

➢ Tutors should be expected to have a plan for the next lesson for student teachers	learning activities of the lesson would be addressed in the lesson. *E.g., Student teacher should make sure that Constructive/Positive verbal feedback is to both male and female in class.* 3.4 Ask tutors to identify any 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school leaners to develop these skills through STS activities. *E.g., Collaboration: Group presentation on written reports.* 3.5 Ask tutors to read the assessment activities in the course manuals and identify areas that require clarification. *E.g.,* **LSI***:* Student teachers work on authentication by ownership and Authentication by Characteristic as an assignment and write notes in their reflective journals. **LM & PCM:** Group presentations of discussions in class to be assessed by student teachers themselves.	activities of the lesson would be addressed in the lesson. *E.g., Student teacher should make sure that Constructive/Positive verbal feedback is to both male and female in class.* 3.4 Identify any 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school leaners to develop these skills through STS activities. *E.g., Collaboration: Group presentation on written reports.* 3.5 Read the assessment activities in the course manual and identify areas that require clarification. *E.g.,* **LSI***:* Student teachers work on authentication by ownership and Authentication by Characteristic as an assignment and write notes in their reflective journals. **LM & PCM:** Group presentations of discussions in class to be assessed by student teachers themselves.	

	Note!! *These could be added to their subject portfolio/ project* 3.6. Ask tutors to identify inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. *E.g., Smart phones, Audio-visuals from YouTube, projector.* 3.7 Ask tutors to have concrete plans for teaching the next topic.	*Note!!* *These could be added to their subject portfolio/ project* 3.6. Identify inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. *E.g., Smart phones, Audio-visuals from YouTube, projector.* 3.7 Have concrete plans for teaching the next topic.	
4. Evaluation and review of session: ➢ Tutors should Identifying critical friends to observe lessons and report at next session ➢ Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1. Ask tutors to individually identify any outstanding issues relating to lesson 4 to be addressed. 4.2. Ask tutors to identify a critical friend to observe the PD session and report on observations during the next PD session. 4.3. Ask tutors to read lesson 5 from the PD manual and find its relevant materials for the next session.	**Evaluation and review of session** 4.1. Individually identify any outstanding issues relating to lesson 4 to be addressed. 4.2. Identify a critical friend to observe the PD session and report on observations during the next PD session. 4.3. Read lesson 5 from the PD manual and find its relevant materials for the next session.	15 mins

Tutor PD Session

Age Level: JHS

Name of Subject/s:

1. Laboratory Management and PC Maintenance **(LM & PCM)**
   Topic: Software Installation I
2. Legal and Security Issues in ICT **(LSI)**
   Topic: Access Control Fundamentals (Authentication methods) III

Year 4 **Semester 2**

Tutor PD Session for Lesson 5

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ A critical friend to share findings for a short discussion and lessons learned ➢ Reading and discussion of the introductory sections of the lesson up to and including learning	**Introduction to the session** 1.1 Ask tutors to reflect and discuss the previous PD Session (Lesson 4) and its benefits on the lessons thought i.e., **LSI** Access Control Fundamentals (Authentication types) II e.g., Authentication by Knowledge **LM &PCM** Software installation I	**Introduction to the session** 1.1 Reflect and discuss the previous PD Session (Lesson 4) and its benefits on the lessons thought i.e., **LSI** Access Control Fundamentals (Authentication types) II e.g., Authentication by Knowledge **LM &PCM** Software installation I	20 mins

outcomes and indicators ➢ Overview of content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	e.g., Formatting and partitioning of drives and installation of operating systems 1.2 Invite the critical friend who observed Lesson 4 to share his/her views and the impacts on their facilitating in class. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 5 in the course manual and indicate how they are related to student teachers' relevant previous knowledge**.** E.g., **LSI** *Student teachers will explore Authentication types under Access control fundamentals. (National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes)* **LM & PCM** *Student teachers will be exposed to the processes for installing an application/ utility/ antivirus software on a computer* **Distinctive Aspects** 1.4. Ask tutors to write 1 distinctive aspect of the lessons from the course manuals for group discussion e.g.,	e.g., Formatting and partitioning of drives and installation of operating systems 1.2 As a critical friend who observed Lesson 4, share your experiences and the impact on your facilitating in class 1.3 Read the introduction, lesson description and the purpose of lesson 5 in the course manual and indicate how they are related to student teachers' relevant previous knowledge**.** E.g., **LSI** *Student teachers will explore Authentication types under Access control fundamentals. (National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes)* **LM & PCM** *Student teachers will be exposed to the processes for installing an application/ utility/ antivirus software on a computer* **Distinctive Aspects** 1.4. Write 1 distinctive aspect of the lessons from the course manual for group discussion. e.g.,	

	LSI Mechanisms for authentication **LM & PCM** i. Device and Driver installation ii. Application Software installation iii. Antivirus *Allow Room Discussion*	**LSI** Mechanisms for authentication **LM & PCM** i. Device and Driver installation ii. Application Software installation iii. Antivirus	
As this course is dealing with supporting and/or assessing the Professional Teaching Portfolio Development and/or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.	1.5 Lead tutors in a discussion on the development of components of the PTP and Classroom Enquiry and Action Research report writing. E.g., i. Reviewing their personal teaching philosophy statement. ii. Guiding student teachers in framing research questions to undertake small scale researches.	1.5 Discuss together the development of components of the PTP and Classroom Enquiry and Action Research report writing. E.g., i. Reviewing their personal teaching philosophy statement. ii. Guiding student teachers in framing research questions to undertake small scale researches.	
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.6 Ask tutors to identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., i. Checking to see if both the brilliant and weak learners understand the lesson. ii. Integrating educational games into lessons.	1.6 Identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., i. Checking to see if both the brilliant and weak learners understand the lesson. ii. Integrating educational games into lessons.	

2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.	**Concept Development** 2.1 Ask tutors to list and share with colleagues the major concept(s) in lesson 5 from the course manuals. E.g., **LSI** Access Control Fundamentals (Authentication methods) III **LM & PCM** Software Installation II 2.1.1 Ask tutors to discuss the major concepts identified in 2.1 above 2.2 Ask tutors to write any possible challenge/ misconception in teaching the concept above for discussion. e.g., **LSI** *Some student teachers might not have had knowledge and understanding of Access control fundamentals II* **LM & PCM** *Colleges of education may have large class sizes that will hinder practical lessons* 2.3 Ask tutors to identify any appropriate teaching strategy that can be used to best explain the new concepts identified. E.g.,	**Concept Development** 2.1 List and share with colleagues the major concept(s) in lesson 5 from the course manuals. E.g., **LSI** Access Control Fundamentals (Authentication methods) III **LM & PCM** Software Installation II 2.1.1 Discuss the major concepts identified in 2.1 above 2.2 Write any possible challenge/ misconception in teaching the concept above for discussion. e.g., **LSI** *Some student teachers might not have had knowledge and understanding of Access control fundamentals II* **LM & PCM** *Colleges of education may have large class sizes that will hinder practical lessons* 2.3 Identify any appropriate teaching strategy that can be used to best explain the new concepts identified. E.g.,	15 mins

	LSI *Engaging in a discussion to explain mechanisms for authentication* **LM &PCM** *Using practical approach to demonstrate how to format, partition and install an application / utility/ antivirus software on a computer*	**LSI** *Engaging in a discussion to explain mechanisms for authentication* **LM &PCM** *Using practical approach to demonstrate how to format, partition and install an application / utility/ antivirus software on a computer*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit links* to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should	**Planning for teaching, learning and assessment activities** 3.1 Ask tutors to read the teaching and learning activities of lesson 5 from the course manuals. 3.1.1 Ask tutors to identify areas that require further clarifications. E.g., **LSI** *Other mechanisms of Authentication* **LM & PCM** *Antivirus versus Firewall.* 3.2 Ask tutors to discuss how the different activities identified would be carried out in both CoE and basic school curriculum to achieve the LOs and the LIs of the course manual for lesson. E.g., **LSI** *Tutor breaks class into small diverse groups to analyse the video identifying Authentication by Knowledge*	**Planning for teaching, learning and assessment activities** 3.1 Read the teaching and learning activities of lesson 5 from the course manual. 3.1.1 Identify areas that require further clarifications. E.g., **LSI** *Other mechanisms of Authentication* **LM & PCM** *Antivirus versus Firewall* 3.2 Discuss how the different activities identified would be carried out in both CoE and basic school curriculum to achieve the LOs and the LIs of the course manual for lesson. E.g., **LSI** *Tutor breaks class into small diverse groups to analyse the video identifying Authentication by Knowledge*	40 mins

include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➢ Resources: links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, YouTube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ➢ Tutors should be expected to have a plan for the next lesson for student teachers	**LM & PCM** *Tutor shows images/videos on the process of installing an operating system onto a computer.* 3.3 In pairs, ask tutors to identify any core and transferable skills, including 21st skills and the use of information technology tools can be developed or applied in the lesson and demonstrate how they can help student teachers to support basic school leaners to develop these skills. E.g., *Critical thinking skills of Student teachers to develop wikis in their respective groups on "the processes for installing an application/utility/antivirus Software on a computer.* 3.4 Ask tutors to read and discuss the assessment activities in the manual and identify areas in the lesson that can be used for assessment especially those in alignment with the NTEAP related activities. E.g., **LSI** *Student teachers do a group presentation on mechanisms for authentication to recap the lesson.* **LM & PCM** *i. Quiz to evaluate knowledge on Installing*	**LM & PCM** *Tutor shows images/videos on the process of installing an operating system onto a computer.* 3.3 Identify any core and transferable skills, including 21st skills and the use of information technology tools can be developed or applied in the lesson and demonstrate how you can help student teachers to support basic school leaners to develop these skills. E.g., *Critical thinking skills of Student teachers to develop wikis in their respective groups on "the processes for installing an application/utility/antivirus Software on a computer* 3.4 Read and discuss the assessment activities in the manual and identify areas in the lesson that can be used for assessment especially those in alignment with the NTEAP related activities. E.g., **LSI** *Student teachers do a group presentation on mechanisms for authentication to recap the lesson*. **LM & PCM** *i. Quiz to evaluate knowledge on Installing*	

	system and application software *ii. Individual student teachers develop reflective notes and ask questions to clarify thinking*. 3.4.1 Let tutors focus be on subject project and the subject portfolio of NTEAP document. *NB: Make sure that everybody has a real plan for teaching the given topics with emphasis on equality and inclusivity of both gender* 3.5 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom. E.g., Ms. PowerPoint, Laptop, smartphones, system units 3.6 Ask Tutors to have a concrete plan that would be employed in teaching the next lesson in class i.e., **LSI** Access Control Fundamentals (Authentication methods) III **LM & PCM** Software Installation II	*system and application software* *ii. Individual student teachers develop reflective notes and ask questions to clarify thinking.* 3.4.1 Your focus should be on subject project and the subject portfolio of NTEAP document. *NB: Make sure you have a real plan for teaching the given topics with emphasis on equality and inclusivity of both gender* 3.5 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom. E.g., Ms. PowerPoint, Laptop, smartphones, system units 3.6. Have a concrete plan that would be employed in teaching the next lesson in class i.e., **LSI** Access Control Fundamentals (Authentication methods) III **LM & PCM** Software Installation II	
4. Evaluation and review of session: ➢ Tutors should Identifying critical friends	**Evaluation and review of session** 4.1. Individually, ask tutors to identify any outstanding	**Evaluation and review of session** 4.1. Identify any outstanding issues relating	15 mins

to observe lessons and report at next session ➢ Identifying and addressing any outstanding issues relating to the lesson/s for clarification	issues relating to the lesson for clarification 4.2 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session 4.3 Ask tutors to read lesson 6 from the PD manual and find relevant materials for the next PD session	to the lesson for clarification 4.2 Identify a critical friend to sit in your class during lesson and report on observation during the next PD session 4.3 Read lesson 6 from the PD manual and find relevant materials for the next PD session	

Tutor PD Session

Age Level: JHS

Name of Subject/s:

1. Laboratory Management and PC maintenance **(LM & PCM)**
   Topic: Troubleshooting common computer problems
2. Legal and Security Issues in ICT **(LSI)**
   Topic: Access Control Fundamentals (Authorization and Auditing methods) IV

Year 4

Semester 2

Tutor PD Session for Lesson 6 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➢ Overview of content and	**Introduction to the lesson** 1.1 Ask tutors to write down one thing they learnt in the previous PD lesson (lesson 5) and give some reflections as to how useful it was on the lessons taught. i.e., **LM & PCM** Software Installation II **LSI** Access Control Fundamentals	**Introduction to the lesson** 1.1 Write down one thing you learnt in the previous PD lesson (lesson 5) and give some reflections as to how useful it was on the lessons taught. i.e., **LM & PCM** Software Installation II **LSI** Access Control Fundamentals	20 mins

identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	(Authentication methods) III 1.2 Invite the critical friend who observed the Lesson 5 to share their experiences and the impacts on their facilitating in class. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 6 in the course manual and indicate how they are related to student teachers' relevant previous knowledge. *E.g.,* ***LM & PCM*** *In this lesson, student teachers would be introduced to the basics of troubleshooting a computer.* **LSI** *In this lesson, Student teachers will be introduced to Authorisation and Auditing Methods.* **Distinctive Aspects** 1.4. Ask tutors to be in smaller groups and i. identify the distinctive aspects of the lesson. e.g., ***LM & PCM*** Diagnostic Procedures, Troubleshooting Techniques **LSI** Authorisation, Auditing	(Authentication methods) III 1.2 Invite the critical friend who observed the Lesson 5 to share their experiences and the impacts on their facilitating in class. 1.3 Read the introduction, lesson description and the purpose of lesson 6 in the course manual and indicate how they are related to student teachers' relevant previous knowledge *E.g.,* ***LM & PCM*** *In this lesson, student teachers would be introduced to the basics of troubleshooting a computer.* **LSI** *In this lesson, Student teachers will be introduced to Authorisation and Auditing Methods.* **Distinctive Aspects** 1.4. In smaller groups, i. identify the distinctive aspects of the lesson. e.g., ***LM & PCM*** Diagnostic Procedures, Troubleshooting Techniques **LSI** Authorisation, Auditing	

	ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** Utility **LSI** Authorisation *NB: Remind tutors to plan for their teaching as they go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** Utility **LSI** Authorisation *NB: Remember to plan for your teaching as they go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	
As this course is dealing with supporting and or assessing the Professional Teaching Portfolio Development or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Intern Seminar.	1.5 Take a lead role and discuss with tutors the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., a. Reflecting with the student teachers their experiences from the school on issues on GESI and the use of ICT tools and how these influence their values of teaching and learning. b. Guiding the student teacher on how to collect data on learners during lesson delivery Refer to STS Year Three School Placement Handbook. Table 8.2.7.2 pg. 93, 115.	1.5 Discuss with your colleagues the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., a. Reflecting with the student teachers their experiences from the school on issues on GESI and the use of ICT tools and how these influence their values of teaching and learning. b. Guiding the student teacher on how to collect data on learners during lesson delivery Refer to STS Year Three School Placement Handbook. Table 8.2.7.2 pg. 93, 115.	
For each session remember this is the final semester	1.6 Ask tutors to identify some ways by which student teachers can	1.6 Identify some ways by which student teachers can integrate ICT, GESI and	

before Students start teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc	integrate ICT, GESI and CCI into their teaching and learning. e.g., a. Creating videos from activities performed with learners, b. Supporting the student teacher to review their previous knowledge on SEN.	CCI into their teaching and learning. e.g., a. Creating videos from activities performed with learners, b. Supporting the student teacher to review their previous knowledge on SEN.	
2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors	**Concept Development** 2.1 Ask tutors to identify the concepts in lesson 6 of the course manuals for discussion. I.e., **LSI** Access Control Fundamentals (Authentication methods) III **LM & PCM** Building/Upgrading a computer 2.2 Ask tutors to write a possible barrier in learning the concepts (Access Control Fundamentals and Building/ Upgrading a computer) above for discussion. *E.g.,* **LSI** *Some student teachers might not have had knowledge and understanding of Web and Mobile Development in Education and its impact on teaching and learning*	**Concept Development** 2.1 Identify the concepts in lesson 6 of the course manuals for discussion. I.e., **LSI** Access Control Fundamentals (Authentication methods) III **LM & PCM** Building/Upgrading a computer 2.2 Write a possible barrier in learning the concepts (Access Control Fundamentals and Building/ Upgrading a computer) above for discussion. *E.g.,* **LSI** *Some student teachers might not have had knowledge and understanding of Web and Mobile Development in Education and its impact on teaching and learning*	15 mins

	LM & PCM *Students may have misconceptions about policies and their effects on teaching and learning.* 2.3 Ask tutors to identify appropriate teaching strategies that can best explain the new concepts identified. *E.g., Guided Practice / Cognitive Apprenticeship: Students follow along with their teacher as an 'apprentice'. By working side-by-side, they learn the subtle little things ('tacit knowledge') required to know in order to master a skill.*	**LM & PCM** *Students may have misconceptions about policies and their effects on teaching and learning.* 2.3 Identify appropriate teaching strategies that can best explain the new concepts identified. *E.g., Guided Practice / Cognitive Apprenticeship: Students follow along with their teacher as an 'apprentice'. By working side-by-side, they learn the subtle little things ('tacit knowledge') required to know in order to master a skill.*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit* links to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI	**Planning for teaching, learning and assessment activities** 3.1. Ask Tutors to individually read through the teaching and learning activities outlined in lesson 6 of the course manuals for group discussion. e.g., **LSI** Tutor uses an interactive lecturette to explain Authorization methods. Using videos Tutor will explain Authorization methods **LM & PCM** Tutor shows images/videos on the tools and diagnostic procedures for troubleshooting.	**Planning for teaching, learning and assessment activities** 3.1. Read through the teaching and learning activities outlined in lesson 6 of the course manuals for group discussion. e.g., **LSI** Tutor uses an interactive lecturette to explain Authorization methods. Using videos Tutor will explain Authorization methods **LM & PCM** Tutor shows images/videos on the tools and diagnostic procedures for troubleshooting.	

responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning ➢ Resources: ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Youtube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power point presentations, TLM or other resources which need to be developed to	3.2 Ask tutors to watch the YouTube videos with the links below **LSI** – Authorisation and Auditing https://www.youtube.com/watch?v=BOFYZbvxRrg **LM &PCM** – Troubleshooting Computers https://www.youtube.com/watch?v=EJemXALSE6U 3.2.1 Ask Tutors to discuss the video they have watched in comparison with the learning activities outlined in lesson 6 of the course manuals. 3.3 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** Auditing Methods ***LM & PCM*** Diagnostic procedures 3.3. Ask tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 6. *E.g.,* ***LSI*** *Student teachers would watch videos about*	3.2 Watch the YouTube video with the link below **LSI** – Authorisation and Auditing https://www.youtube.com/watch?v=BOFYZbvxRrg **LM &PCM** – Troubleshooting Computers https://www.youtube.com/watch?v=EJemXALSE6U 3.2.1 Discuss with your colleagues the video you have watched in comparison with the learning activities outlined in lesson 6 of the course manuals. 3.3 Note areas that require clarification and/or contribution. *E.g.,* ***LSI*** Auditing Methods ***LM & PCM*** Diagnostic procedures 3.3. Discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 6. *E.g.,* ***LSI*** *Student teachers would watch videos about*	

support learning ➢ Tutors should be expected to have a plan for the next lesson for student teachers	*responsible use of technology systems.* ***LM &PCM*** *Student* teachers would prepare and give presentations in groups and individuals. 3.4. In pairs or small groups, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *NTS 3f: Pays attention to all learners, especially girls and students with Special Educational needs, ensuring their progress, 1a.* 3.5 Ask tutors to read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment in alignment with NTEAP related activities. E.g., ***LSI*** *Student teachers write to explain Authorisation and Auditing Methods.* ***LM &PCM*** *Student teacher produce reflective notes on "diagnostic tools, diagnostic procedures, troubleshooting techniques, common PC problems and their fixes.*	*responsible use of technology systems.* ***LM &PCM*** *Student* teachers would prepare and give presentations in groups and individuals. 3.4. In pairs or small groups, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *NTS 3f: Pays attention to all learners, especially girls and students with Special Educational needs, ensuring their progress, 1a.* 3.5 Read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment in alignment with NTEAP related activities. E.g., ***LSI*** *Student teachers write to explain Authorisation and Auditing Methods.* ***LM &PCM*** *Student teacher produce reflective notes on "diagnostic tools, diagnostic procedures, troubleshooting techniques, common PC problems and their fixes.*	

	Note Ask tutors to encourage student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). 3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards) as well as Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7 Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Access Control Fundamentals (Authorization and Auditing methods) IV **LM &PCM** Troubleshooting common computer problems	**Note** Encourage student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). 3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards) as well as Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7 Brainstorm a plan that will be appropriate for the next lesson: **LSI** Access Control Fundamentals (Authorization and Auditing methods) IV **LM &PCM** Troubleshooting common computer problems	

4. Evaluation and review of session: a. Tutors need to identify critical friends to observe lessons and report at next session b. Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Ask tutors to identify any outstanding issues relating to lesson 6 from the course manual for clarification 4.3 Remind tutors to read lesson 7 from the PD manual and find relevant materials for the next session.	**Evaluation and review of session** 4.1 Identify a critical friend to sit in your class during lesson and report on observation during the next PD session. 4.2 Identify any outstanding issues relating to lesson 6 from the course manual for clarification 4.3 Read lesson 7 from the PD manual and find relevant materials for the next session.	15 mins

Tutor PD Session

Age Level: JHS **Name of Subject/s: ICT**

Year 4 **Semester 2**

Tutor PD Session for Lesson 7

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ A critical friend to share findings for a short discussion and lessons learned ➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➢ Overview of content and identification of any **distinctive aspects** of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and	**Introduction to the session** **Begin the lesson with an Ice Breaker** 1.1 Ask tutors to write any new thing they learnt in their last PD session on lesson 6. i.e., Knowledge and understanding of … **LSI**: Access Control Fundamentals (Authorization and Auditing methods) IV **LM & PCM**: Troubleshooting common computer problems 1.1.1 Ask tutors to share what they have written for the whole group discussion.	**Introduction to the session** **Begin the lesson with an Ice Breaker** 1.1 Write any new thing you learnt in your last PD session on lesson 6. i.e., Knowledge and understanding of … **LSI**: Access Control Fundamentals (Authorization and Auditing methods) IV **LM & PCM**: Troubleshooting common computer problems 1.1.1 Share what you have written for the whole group discussion.	20 mins

support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	1.2 Invite the tutor who observed Lesson 6 to share their experiences with the group. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 6 in the course manual and indicate how they are related to student teachers' relevant previous knowledge***.*** E.g., **LSI:** *In this lesson, student teachers will be introduced to logical controls under types of information security controls.* ***(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).*** **LM & PCM:** *The purpose of this lesson is to introduce student teachers to PC maintenance.* ***(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).*** **Distinctive Aspect** 1.4. Ask tutors to brainstorm on the	1.2 As a critical friend who observed Lesson 6, share your experiences and the impact on your facilitating in class 1.3 Read the introduction, lesson description and the purpose of lesson 6 in the course manual and indicate how they are related to student teachers' relevant previous knowledge***.*** E.g., **LSI:** *Student teachers will explore Authentication types under Access control fundamentals.* ***(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).*** **LM & PCM:** *Student teachers will be exposed to how to configure and install software on a computer system.* ***(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).*** **Distinctive Aspect** 1.4. Write any 1 distinctive aspect of the	

	distinctive aspects of the lesson for group discussion. i.e. **LSI**: *Logical Controls* **LM & PCM**: *Maintenance Scheduling* 1.4.1 Ask tutors to share their responses with a colleague.	lesson for discussion. i.e. **LSI:** *Logical Controls* **LM & PCM:** *Maintenance Scheduling* 1.4.1 Share your responses with a colleague.	
As this course is dealing with supporting and or assessing the Professional Teaching Portfolio Development or the Classroom Enquiry and Action Research Project Report writing, tutors need to be provided with guidance on what to do including organisation of Post Internship Seminar.	1.5 Ask tutors to i. Remind student teacher to use the ideas generated to prepare a template for building a professional teaching portfolio. ii. Remind the student teacher to observe the entire class during lesson deliveries and closely take note of learners with special learning needs using observation guide they have designed.	1.5 Remind student teacher to use the ideas generated to prepare a template for building a professional teaching portfolio. ii. Remind the student teacher to observe the entire class during lesson deliveries and closely take note of learners with special learning needs using observation guide they have designed.	
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.6 Encourage student teachers to make a recording of a lesson they deliver with the help of ICT tools (e.g., your phone, a video camera, an audio tape recorder).	1.6 Encourage student teacher to make a recording of a lesson they deliver with the help of ICT tools (e.g., your phone, a video camera, an audio tape recorder).	
2 Concept Development (New learning likely to arise in lesson/s): ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy	**Concept Development** 2.1 Ask tutors to list and share with an opposite gender (if applicable), the major concepts in the lesson. E.g., **LSI**: Logical Controls	**Concept Development** 2.1 List and share with an opposite gender (if applicable), the major concepts in the lesson. E.g., **LSI**: Logical Controls	15 mins

being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.	**LM & PCM**: Maintenance 2.2 Ask tutors to write 2 possible challenges/ misconceptions in teaching the concept above for discussion. *E.g., Some student teachers may have very limited skill and experience using a computer.* 2.3 Ask tutors to identify some appropriate teaching strategies that can be used to best explain the new concepts identified. *E.g.,* **Practical Work**: Tutor guides student teachers to perform each task on a computer system.	**LM & PCM**: Maintenance 2.2 Write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. *E.g., Some student teachers may have very limited skill and experience using a computer* 2.3 Identify some appropriate teaching strategies that can be used to best explain the new concepts identified. *E.g.,* **Practical Work**: Tutor guides student teachers to perform each task on a computer system.	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit links* to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous	**Planning for teaching, learning and assessment activities** 3.1 Ask tutors to read the teaching and learning activities of lesson 7 from the course manual. E.g., **LSI**: *Tutor uses an interactive lecturette to explain Logical controls and leads a discussion on Logical controls.* **LM & PCM**: *Tutor/lecturer uses questions to initiate discussion on what maintenance is. Tutor*	**Planning for teaching, learning and assessment activities** 3.1 Read the teaching and learning activities of lesson 7 from the course manual. E.g., **LSI**: *Tutor uses an interactive lecturette to explain Logical controls and leads a discussion on Logical controls*. **LM & PCM**: *Tutor/lecturer uses questions to initiate discussion on what maintenance is. Tutor*	40 mins

assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➢ Resources: links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, YouTube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ➢ Tutors should be expected to have a plan for the next lesson for student teachers	*guides student teachers.* ***(PDP Theme 2).*** 3.2 Ask tutors to identify any aspect that needs clarification. 3.3 In groups of at least two 2 if applicable, lead tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of lesson 7 from the course manuals. e.g., **LSI:** *Student teacher watches video and uses it to answer questions on types of Information security controls.* **LM & PCM:** Student teachers watch videos to build an understanding of Computer maintenance and optimisation I. 3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed in the lesson. *E.g., Body language does not exclude girls or shows preferential treatment to boys* 3.5 Ask tutors to read the assessment activities in the course manuals and identify areas that	*guides student teachers.* ***(PDP Theme 2).*** 3.2 Identify any aspect that needs clarification. 3.3 In groups of at least two 2 if applicable, discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of lesson 7 from the course manuals. e.g., **LSI:** *Student teacher watches video and uses it to answer questions on types of Information security controls.* **LM & PCM:** Student teachers watch videos to build an understanding of Computer maintenance and optimisation I. 3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed in the lesson. *E.g., Body language does not exclude girls or shows preferential treatment to boys* 3.5 Read the assessment activities in the course manual and	

	require clarification. *E.g.,* **LSI***:* Student teachers write short notes with examples of the following under logical controls i.e., *Traditional Firewalls, Packet-Filtering Techniques, Application Proxies, Network Address Translation, Port Address Translation* **LM & PCM:** *Students produce a maintenance plan for a school computer laboratory Students write reflective notes on maintaining school computer laboratories.* 3.6. Ask tutors to identify other inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. *E.g., Images/ videos, Projectors and computers* 3.7 Ask tutors to have plans for teaching the next topic.	identify areas that require clarification. *E.g.* **LSI***:* Student teachers write short notes with examples of the following under logical controls i.e., *Traditional Firewalls, Packet-Filtering Techniques, Application Proxies, Network Address Translation, Port Address Translation* **LM & PCM:** *Students produce a maintenance plan for a school computer laboratory Students write reflective notes on maintaining school computer laboratories.* 3.6. Identify other inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. *E.g., Images/ videos, Projectors and computers* 3.7 Have plans for teaching the next topic.	
4. Evaluation and review of session: ➢ Tutors should Identifying critical friends to observe lessons and report at next session	**Evaluation and review of session** 4.1. Ask tutors to individually identify any outstanding issues relating to lesson 7 to be addressed.	**Evaluation and review of session** 4.1. Identify any outstanding issues relating to lesson 7 to be addressed.	15 mins

➢ Identifying and addressing any outstanding issues relating to the lesson/s for clarification	4.2. Ask tutors to identify a critical friend to observe the PD session and report on observations during the next PD session. 4.3. Ask tutors to read lesson 8 from the PD manual and find its relevant materiaals for the next session.	4.2. Identify a critical friend to observe the PD session and report on observations during the next PD session. 4.3. Read lesson 8 from the PD manual and find its relevant materials for the next session.	

Tutor PD Session			
Age Levels/s:	**Name of Subject/s:** 1. **Laboratory Management and PC Maintenance (LM & PCM)** Topic: Computer maintenance and optimisation II 2. **Legal and Security Issues in** ICT **(LSI)** Topic: Information security controls (Physical & Administrative Controls) II		
Year 4	**Semester 2**		
Tutor PD Session for Lesson 8			
Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ A critical friend to share findings for a short discussion and lessons learned ➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➢ Overview of content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify,	**Introduction to the session** ***Start with an icebreaker*** 1.1 Using questioning, engage tutors in a discussion to recap knowledge gained from previous PD Session (Lesson 7) and state how useful it was on the lesson taught. i.e., **LSI** Types of Information security controls (Logical Controls) I **LM & PCM** Computer maintenance and optimisation I	**Introduction to the session** ***Start with an icebreaker*** 1.1 Discuss the previous lessons on systems boards, processors and memory to recap knowledge gained from previous PD Session (Lesson 7) and state how useful it was on the lesson taught. **LSI** Types of Information security controls (Logical Controls) I **LM & PCM** Computer maintenance and optimisation I	20 mins

address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	1.2 Invite the critical friend who observed Lesson 7 to share their experiences and the impacts on their facilitating in class. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 8 in the course manual and indicate how they are related to student teachers' relevant previous knowledge. ***Refer tutors to the course manual*** **Distinctive Aspect** 1.4. Ask tutors to be in groups of two (where applicable) and identify the distinctive aspects of the lesson 8 from the course manuals for discussion. E.g., **LSI - Information security controls II** Physical controls administrative controls (ICT policies and administrative processes & procedures) **LM & PCM – Computer maintenance and optimisation II** Common maintenance activities.	1.2 As a critical friend who observed Lesson 7, share your experiences and the impact on your facilitating in class 1.3 Read the introduction, lesson description and the purpose of lesson 8 in the course manual and indicate how they are related to student teachers' relevant previous knowledge. ***Refer to the course manual*** **Distinctive Aspect** 1.4 In groups of two (where applicable) identify the distinctive aspects of the lesson 8 from the course manuals for discussion. E.g., **LSI - Information security controls II** Physical controls administrative controls (ICT policies and administrative processes & procedures) **LM & PCM – Computer maintenance and optimisation II** Common maintenance activities	
As this course is dealing with supporting and/or assessing the Professional Teaching	1.5 Discuss with tutors the development of components of the PTP and Classroom Enquiry	1.5 Discuss with tutors the development of components of the PTP and Classroom Enquiry	

Portfolio Development and/or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.	and Action Research report writing by the student teachers. E.g., i. Keeping lesson evaluations from whole class teaching ii. Keeping a list of the challenges encountered in implementation of interventions of researches they do.	and Action Research report writing by the student teachers. E.g., i. Keeping lesson evaluations from whole class teaching ii. Keeping a list of the challenges encountered in implementation of interventions of researches they do.	
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.6. Ask tutors to be in pairs and identify ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning in the classroom. e.g., a. the use of PowerPoint software to deliver lessons b. Promoting creativity like troubleshooting a PC. c. Delegating roles to females and males equally. (NTS 1c)	1.6. Ask tutors to be in pairs and identify ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning in the classroom. e.g., a. the use of PowerPoint software to deliver lessons b. Promoting creativity like troubleshooting a PC. c. Delegating roles to females and males equally. (NTS 1c)	
2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD	**Concept Development** 2.1 Ask tutors to write at least a major concept in the lesson from the course manuals and share with the whole group e.g., **LSI** **Information security controls II** **LM & PCM –** **Computer maintenance and optimisation II**	**Concept Development** 2.1 Write at least a major concept in the lesson from the course manuals and share with the whole group e.g., **LSI** **Information security controls II** **LM & PCM –** **Computer maintenance and optimisation II**	15 mins

NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.	2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed 2.1 above. E.g., **LSI** Some student teachers might not have had knowledge and understanding of information security **LM & PCM** Some student teachers may not have enough basic skills in maintaining computers 2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified E.g., Cooperative learning: having students work together rather than in competition, requires students to talk to one another which can help them learn from each other's perspectives.	2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed 2.1 above. E.g., **LSI** Some student teachers might not have had knowledge and understanding of information security **LM & PCM** Some student teachers may not have enough basic skills in maintaining computers 2.3 Identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified E.g., Cooperative learning: having students work together rather than in competition, requires students to talk to one another which can help them learn from each other's perspectives.	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas	**Planning for teaching, learning and assessment activities** 3.1. Ask Tutors to read through the teaching and learning activities outlined in the lesson from the course manual individually for group large discussion.	**Planning for teaching, learning and assessment activities** 3.1. Read through the teaching and learning activities outlined in the lesson from the course manual individually for large group discussion.	40 mins

where tutors may require clarification ➢ Noting opportunities for making *explicit links* to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➢ Resources: links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability. ➢ Tutors should be expected to have a plan for the next lesson for student teachers	E.g., **LSI** watch short videos from YouTube, on Physical controls and administrative controls. **LM & PCM** Watch video tutorial on how to perform various maintenance tasks (blowing, updating system and application utilities, optimisation. 3.2 Ask tutors to watch a video on: **LSI** Physical controls and administrative controls https://youtu.be/NLzgcDX6rkE **LM & PCM** Maintenance tasks (blowing, updating system and application utilities, optimization https://youtu.be/J07rd4nMXeo 3.2.1 *Ask tutors to discuss their findings with the larger group* 3.3 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** *The difference between* Physical controls and administrative controls	E.g., **LSI** watch short videos from YouTube, on Physical controls and administrative controls. **LM & PCM** Watch video tutorial on how to perform various maintenance tasks (blowing, updating system and application utilities, optimisation 3.2 Watch a video on: **LSI** Physical controls and administrative controls https://youtu.be/NLzgcDX6rkE **LM & PCM** Maintenance tasks (blowing, updating system and application utilities, optimization https://youtu.be/J07rd4nMXeo 3.2.1 Discuss your findings with the larger group 3.3 Note areas that require clarification and/or contribution. *E.g.,* ***LSI*** *The difference between* Physical controls and administrative controls	

	LM & PCM *The difference between blowing, updating system and application utilities, optimization* 3.4. Lead tutors to discuss in groups how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for the lesson. *E.g., Tutor tasks* Student teachers to individually make reflective notes on the computer maintenance so as to reference it when the need arises 3.5 Using think-pair-share, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. *E.g., both genders taking turns in leading roles and Inclusivity.* 3.6 Ask tutors to identify any 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school leaners to develop these skills. E.g., *The use of PowerPoint,*	**LM & PCM** *The difference between blowing, updating system and application utilities, optimization* 3.4. Discuss in groups how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for the lesson. *E.g., Tutor tasks* Student teachers to individually make reflective notes on the computer maintenance so as to reference it when the need arises 3.5 Using think-pair-share, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. *E.g., both genders taking turns in leading roles and Inclusivity.* 3.6 identify any 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school leaners to develop these skills. E.g., *The use of PowerPoint, smartphones*	

	smartphones to prepare and present lessons. 3.7 Ask tutors to read and discuss the assessment activities in the manual and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. *E.g., Discuss in groups the Physical controls and administrative controls using group presentations* NB: Remind tutors to focus on *subject project and the subject portfolio of NTEAP document.* 3.8 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom. *E.g.,* *YouTube Video, Coursera, Projector, Laptop (PC)* 3.9. Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Information security controls (Physical & Administrative Controls) II **LM & PCM**	*to prepare and present lessons*. 3.7 Read and discuss the assessment activities in the manual and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. *E.g., Discuss in groups the Physical controls and administrative controls using group presentations* NB: Remind tutors to focus on *subject project and the subject portfolio of NTEAP document.* 3.8 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom. *E.g.,* *YouTube Video, Coursera, Projector, Laptop (PC)* 3.9. Brainstorm a plan that will be appropriate for the next lesson: **LSI** Information security controls (Physical & Administrative Controls) II **LM & PCM**	

	Computer maintenance and optimization II *Remind Tutors to have a concrete plan for teaching the next lesson for student teachers*	Computer maintenance and optimization II *Remind Tutors to have a concrete plan for teaching the next lesson for student teachers*	
4. Evaluation and review of session: ➢ Tutors should Identifying critical friends to observe lessons and report at next session ➢ Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1. Individually, let tutors identify any outstanding issues relating to the lesson for clarification 4.2 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session 4.3 Ask tutors to read lesson 9 from the PD manual and find relevant materials for the next session.	**Evaluation and review of session** 4.1. Identify any outstanding issues relating to the lesson for clarification 4.2 Identify a critical friend to sit in your class during lesson and report on observation during the next PD session 4.3 Read lesson 9 from the PD manual and find relevant materials for the next session.	15 mins

<table>
<tr><th colspan="4">Tutor PD Session</th></tr>
<tr><td colspan="2">Age Level: JHS</td><td colspan="2">Name of Subject/s:
1. Laboratory Management and PC maintenance (LM & PCM)
Topic: Computer maintenance and optimisation III
2. Legal and Security Issues in ICT (LSI)
Topic: Legal issues (Introduction, Child & Data protection) I</td></tr>
<tr><td colspan="2">Year 4</td><td colspan="2">Semester 2</td></tr>
<tr><th colspan="4">Tutor PD Session for Lesson 9 in the Course Manual</th></tr>
<tr><td>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</td><td>Guidance notes on Leading the session. What the SL/HoDs will have to say during each stage of the session</td><td>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</td><td>Time in session</td></tr>
<tr><td>1 Introduction to the session
➢ Review prior learning
➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</td><td>Introduction to the lesson

1.1 Ask tutors to write down one thing they learnt in the previous PD lesson (lesson 8) and give some reflections as to how useful it was on the lessons taught. i.e.,

LM & PCM
Computer maintenance and optimisation II</td><td>Introduction to the lesson

1.1 Write down one thing you learnt in the previous PD lesson (lesson 8) and give some reflections as to how useful it was on the lessons taught. i.e.,

LM & PCM
Computer maintenance and optimisation II</td><td>20 mins</td></tr>
</table>

➢ Overview of content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	**LSI** Information security controls (Physical & Administrative Controls) II 1.2 Invite the critical friend who observed the Lesson 8 to share their experience and the impacts on their facilitating in class. 1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 9 in the course manual and indicate how they are related to student teachers' relevant previous knowledge. *E.g.,* ***LM & PCM*** *The purpose of this lesson is to introduce student teachers to a presentation application.* **LSI** *In this lesson, student teachers will be introduced to legal issues (Child and Data protection).* **Distinctive Aspects** 1.4. Ask tutors to be in smaller groups and i. identifies the distinctive aspects of the lesson. e.g., ***LM & PCM*** MBR corruption, Boot sector corruption, System file corruption **LSI** Data protection Laws	**LSI** Information security controls (Physical & Administrative Controls) II 1.2 As a critical friend who observed Lesson 8, share your experiences and the impact on your facilitating in class 1.3 Read the introduction, lesson description and the purpose of lesson 9 in the course manual and indicate how they are related to student teachers' relevant previous knowledge. *E.g.,* ***LM & PCM*** *The purpose of this lesson is to introduce student teachers to a presentation application.* **LSI** *In this lesson, student teachers will be introduced to legal issues (Child and Data protection).* **Distinctive Aspects** 1.4. Be in smaller groups and i. identifies the distinctive aspects of the lesson. e.g., ***LM & PCM*** MBR corruption, Boot sector corruption, System file corruption	

	ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** Crashes or hangs **LSI** Cyberspace Privacy *NB: Remind tutors to plan for their teaching as they go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	**LSI** Data protection Laws ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** Crashes or hangs **LSI** Cyberspace Privacy *NB: Remember to plan for their teaching as you go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	
As this course is dealing with supporting and or assessing the Professional Teaching Portfolio Development or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Intern Seminar.	1.5 Discuss with tutors the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., *a. Asking student teachers to provide reports from observation on learners' needs compiled in a developing professional teaching portfolio.* *b. Discussing with the student teacher additional beliefs, values and understandings regarding teaching and learning that could result in a change in a personal teaching philosophy.* Refer to STS Year Three School Placement Handbook. pg. 161.	1.5 Discuss with your colleagues the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., *a. Asking student teachers to provide reports from observation on learners' needs compiled in a developing professional teaching portfolio.* *b. Discussing with the student teacher additional beliefs, values and understandings regarding teaching and learning that could result in a change in a personal teaching philosophy*. Refer to STS Year Three School Placement Handbook. pg. 161.	

For each session remember this is the final semester before Students start teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc	1.6 Ask tutors to identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., a. Creating videos from activities performed with learners, b. Supporting the student teacher to review their previous knowledge on SEN.	1.6 Identify some ways by which student teachers can integrate ICT, GESI and CCI into your teaching and learning. e.g., a. Creating videos from activities performed with learners, b. Supporting the student teacher to review their previous knowledge on SEN.	
2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors	**Concept Development** 2.1 Ask tutors to identify the concepts in lesson 9 of the course manuals for discussion. i.e., **LSI** Cyberspace Privacy Laws and Issues, and Child Protection Laws **LM & PCM** Boot process issues, System file corruption, Crashes or hangs, Driver or service start-up failure 2.2 Ask tutors to write a possible barrier in learning the concepts (Cyberspace Privacy Laws and Issues/ Managing and Supporting basic operating systems problems) identified above for discussion. E.g., **LSI** *Some student teachers might not have had knowledge and understanding of Legal Issues.*	**Concept Development** 2.1 Identify the concepts in lesson 9 of the course manual for discussion. I.e., **LSI** Cyberspace Privacy Laws and Issues, and Child Protection Laws **LM & PCM** Boot process issues, System file corruption, Crashes or hangs, Driver or service start-up failure 2.2 Write a possible barrier in learning the concepts (Cyberspace Privacy Laws and Issues/ Managing and Supporting basic operating systems problems) identified above for discussion. E.g., **LSI** *Some student teachers might not have had knowledge and understanding of Legal Issues.*	15 mins

	LM & PCM *Some student teachers may have very limited skills and practice time using a computer.* 2.3 Ask tutors to identify appropriate teaching strategies that can best explain the new concepts identified. *E.g., Scaffolding: Providing support to students while they cannot complete a task alone. Then, when the student can complete the task alone, the teacher withdraws their support.*	***LM & PCM*** *Some student teachers may have very limited skills and practice time using a computer.* 2.3 Identify appropriate teaching strategies that can best explain the new concepts identified. *E.g., Scaffolding: Providing support to students while they cannot complete a task alone. Then, when the student can complete the task alone, the teacher withdraws their support.*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit* links to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI	**Planning for teaching, learning and assessment activities** 3.1. Ask Tutors to individually read through the teaching and learning activities outlined in lesson 9 of the course manuals for group discussion. e.g., **LSI** *Tutor guides student teachers to discuss Data protection* *laws (data protection Act 843)*. **LM & PCM** *Tutor shows a video tutorial on various operating system problems including boot process issues, Driver or service start-up failure and Logon problems.* 3.2 Ask tutors to watch the YouTube videos with the links below	**Planning for teaching, learning and assessment activities** 3.1. Read through the teaching and learning activities outlined in lesson 9 of the course manuals for group discussion. e.g., **LSI** *Tutor guides student teachers to discuss Data protection* *laws (data protection Act 843)*. **LM & PCM** *Tutor shows a video tutorial on various operating system problems including boot process issues, Driver or service start-up failure and Logon problems.* 3.2 Watch the YouTube video with the link below	

responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning ➢ Resources: ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Youtube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power	**LSI** – General Data Protection Regulation https://youtu.be/acijNEErf-c **LM &PCM** – Optimization https://youtu.be/Q2dewZweAtU 3.2.1 Ask Tutors to discuss the video they have watched in comparison with the learning activities outlined in lesson 9 of the course manuals. 3.3 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** Cyberspace Privacy Laws ***LM & PCM*** Start-up failure and Logon problems. 3.3. Ask tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 9. *E.g.,* ***LSI*** *Student teachers share their views on Data protection laws (data protection Act 843). Student teachers do group presentations for whole class discussions.*	**LSI –** General Data Protection Regulation https://youtu.be/acijNEErf-c **LM &PCM –** Optimization https://youtu.be/Q2dewZweAtU 3.2.1 Discuss with your colleagues the video you have watched in comparison with the learning activities outlined in lesson 6 of the course manuals. 3.3 Note areas that require clarification and/or contribution. *E.g.,* ***LSI*** *Cyberspace Privacy Laws* ***LM & PCM*** *Start-up failure and Logon problems.* 3.3. Discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 9. *E.g.,* ***LSI*** *Student teachers share their views on Data protection laws (data protection Act 843). Student teachers do group presentations for whole class discussions.*	

point presentations, TLM or other resources which need to be developed to support learning ➢ Tutors should be expected to have a plan for the next lesson for student teachers	***LM &PCM*** *Student teachers individually make reflective notes on operating system problems*. 3.4. In pairs or small groups, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Being patient with females and males who may be shy or afraid to speak.* 3.5 Ask tutors to read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment in alignment with NTEAP related activities. E.g., ***LSI*** *Student teacher reviews Data protection laws (data protection Act 843).* ***LM &PCM*** *Student teacher produce reflective notes on "Boot sector corruption as well as System file corruption and their fixes.* **Note** Ask tutors to encourage student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work).	***LM &PCM*** *Student teachers individually make reflective notes on operating system problems* 3.4. In pairs or small groups, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Being patient with females and males who may be shy or afraid to speak.* 3.5 Read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment in alignment with NTEAP related activities. E.g., ***LSI*** *Student teacher reviews Data protection laws (data protection Act 843).* ***LM &PCM*** *Student teacher produce reflective notes on "Boot sector corruption as well as System file corruption and their fixes.* **Note** Encourage student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work).	

	3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g., Access to the Internet, a personal Computer, Instructional Laboratories as well as Videos* *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7 Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Legal issues (Introduction, Child & Data protection) I **LM &PCM** Computer maintenance and optimisation III	3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g., Access to the Internet, a personal Computer, Instructional Laboratories as well as Videos* *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7 Brainstorm a plan that will be appropriate for the next lesson: **LSI** Legal issues (Introduction, Child & Data protection) I **LM &PCM** Computer maintenance and optimisation III	
4. Evaluation and review of session: a. Tutors need to identify critical friends to observe lessons and report at next session b. Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Ask tutors to identify any outstanding issues relating to lesson 9 from the course manual for clarification 4.3 Remind tutors to read lesson 10 from the PD manual and find relevant materials for the next session.	**Evaluation and review of session** 4.1 Identify a critical friend to sit in your class during lesson and report on observation during the next PD session. 4.2 Identify any outstanding issues relating to lesson 9 from the course manual for clarification 4.3 Read lesson 10 from the PD manual and find relevant materials for the next session.	15 mins

Tutor PD Session			
Age Level: JHS	**Name of Subject/s:** **1.** Laboratory Management and PC maintenance **(LM & PCM)** **Topic:** Laboratory Configuration and Management I **2.** Legal and Security Issues in ICT **(LSI)** Topic: Legal issues (Electronic Communications) II		
Year 4		**Semester 2**	
Tutor PD Session for Lesson 10			
Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ A critical friend to share findings for a short discussion and lessons learned ➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators	**Introduction to the lesson** 1.1 Ask tutors to write any new thing they learnt in their last PD session on lesson 9. **LSI:** Legal issues (Introduction, Child & Data protection) I **LM & PCM:** Computer maintenance and optimisation III 1.2 Invite the tutor who observed Lesson 9 to share their experiences to the group.	**Introduction to the lesson** 1.1 Write any new thing you learnt in the last PD session on lesson 9. **LSI:** Legal issues (Introduction, Child & Data protection) I **LM & PCM:** Computer maintenance and optimisation III 1.2 As a critical friend who observed Lesson 9, share your experiences and the	20 mins

➢ Overview of content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	1.3 Ask tutors to: i. Read the introductory sections of lesson 10 up to the learning outcomes and their corresponding indicators individually and then discuss in pairs (mixed pairs where applicable). *E.g.,* ***LM & PCM*** ***LO*** *- Install, configure/customize system and application software.* ***LI*** *- Install and configure operating systems & device drivers* **LSI** ***LO*** *- Demonstrate compliance of statutory, regulatory and institutional ICT requirements. (NTS 2b, 2c, 3b, 3c, 3d, 3e, 3h, 3i, 3k, 3n, 3p NTECF: Pillars 1, 2 & 3, crosscutting issues; Core skills, Assessment, Professional values and attitudes)* **LI** - Explain the legal issues and implications associated with use of ICT. 1.4 Ask tutors to i. Write down one distinctive aspects of the lessons from the course manual. e.g., ***LM & PCM*** *Electronic communication Law*.	impact on your facilitating in class 1.3 Read the introductory sections of lesson 10 up to the learning outcomes and their corresponding indicators individually and then discuss in pairs (mixed pairs where applicable). *E.g.,* ***LM & PCM*** ***LO*** *- Install, configure/customize system and application software.* ***LI*** *- Install and configure operating systems & device drivers* **LSI** ***LO*** *- Demonstrate compliance of statutory, regulatory and institutional ICT requirements. (NTS 2b, 2c, 3b, 3c, 3d, 3e, 3h, 3i, 3k, 3n, 3p NTECF: Pillars 1, 2 & 3, crosscutting issues; Core skills, Assessment, Professional values and attitudes)* **LI** - Explain the legal issues and implications associated with use of ICT. 1.4 i. Write down one distinctive aspects of the lessons from the course manual. e.g., ***LM & PCM*** *Electronic communication Law*.	

	LSI Laboratory configurations for teaching and learning. ii. Identify areas that need further clarification in the lesson. E.g., *NB: Remind tutors to plan for their teaching as they go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	**LSI** Laboratory configurations for teaching and learning. ii. Identify areas that need further clarification in the lesson. E.g., *NB: Remind tutors to plan for their teaching as they go through the PD session. E.g., using Tutor-led discussion, self-prepared videos or from YouTube video to aid the lesson.*	
If this course is dealing with supporting and or assessing the Professional Teaching Portfolio Development or the Action Research Project Report writing. Tutors need to be provided with guidance on what to do including organisation of Post Internship Seminar.	1.5 Take a lead role and discuss with tutors the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., *i. Proposing interventions for problems identified in the classroom.* *ii. Reporting (listing) activities that achieve specific standards on the NTS.*	1.5 Discuss with your colleagues the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., *i. Proposing interventions for problems identified in the classroom.* *ii. Reporting (listing) activities that achieve specific standards on the NTS.*	
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.6 Ask tutors to identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., *i. Giving constructive/positive verbal feedback to both females and males in class.* *ii. Checking to see if both the brilliant and weak learners understand the lesson.*	1.6 Identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., *i. Giving constructive/positive verbal feedback to both females and males in class.* *ii. Checking to see if both the brilliant and weak learners understand the lesson.*	

2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.	**Concept Development** 2.1 Ask tutors to list and share the major concepts in the lesson. *E.g.,* ***LM & PCM:*** Laboratory configurations for teaching and learning. **LSI:** Electronic Communication (electronic communication act 775) 2.1.1 Ask tutors to discuss the major concepts listed in 2.1 above 2.2 Ask tutors to write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. *e.g., Student teachers might not have had knowledge and understanding of* computer setups. 2.3 Ask tutors to identify some appropriate teaching strategies that can be used to best explain the new concepts identified. *E.g., Modelled Teaching: It is an instructional strategy that involves the tutor 'showing' student teachers how to do a task. The teacher shows the task while also breaking it down into small steps. This helps student teacher to see how to complete the task.*	**Concept Development** 2.1 List and share the major concepts in the lesson. *E.g.,* ***LM & PCM:*** Laboratory configurations for teaching and learning. **LSI:** Electronic Communication (electronic communication act 775) 2.1.1 Discuss the major concepts listed in 2.1 above 2.2 Write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. *e.g., Student teachers might not have had knowledge and understanding of* computer setups. 2.3 Identify some appropriate teaching strategies that can be used to best explain the new concepts identified. *E.g., Modelled Teaching: It is an instructional strategy that involves the tutor 'showing' student teachers how to do a task. The teacher shows the task while also breaking it down into small steps. This helps student teacher to see how to complete the task.*	15 mins
3.Planning for teaching, learning and assessment activities for the lesson/s	**Planning for teaching, learning and assessment activities** 3.1. In pairs, ask tutors to watch the YouTube videos	**Planning for teaching, learning and assessment activities** 3.1. In pairs, watch the YouTube videos below on	40 mins

➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit links* to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning , subject specific examples should be provided for SL/HoD ➢ Resources: links to the existing PD Themes, for example, action research,	below on any internet enabled device available. **LSI** – Electronic Communication Act. https://youtu.be/YBGWK-XCAIM **LM &PCM** – Computer Laboratory Configuration https://youtu.be/3LMhibgyeg8 3.1.1 Ask tutors to discuss the content of the videos in relation to the teaching and learning activities in the course manuals. 3.2 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** Electronic Communication Act 775 ***LM &PCM*** Laboratory layouts 3.3 Ask tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 1. *E.g.,* ***LSI*** *Student teachers discuss Electronic Communications Laws and make group presentations for whole class discussions*	any internet enabled device available. **LSI** – Electronic Communication Act. https://youtu.be/YBGWK-XCAIM **LM &PCM** – Computer Laboratory Configuration https://youtu.be/3LMhibgyeg8 3.1.1 Discuss the content of the videos in relation to the teaching and learning activities in the course manuals. 3.2 Note areas that require clarification and/or contribution. *E.g.,* ***LSI*** Electronic Communication Act 775 ***LM &PCM*** Laboratory layouts 3.3 Discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 1. *E.g.,* ***LSI*** *Student teachers discuss Electronic Communications Laws and make group presentations for whole class discussions*	

questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability. ➢ Tutors should be expected to have a plan for the next lesson for student teachers	***LM &PCM*** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory configurations.* 3.4 In pairs or small groups, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Equal representation of both gender of different ethnicity and mixed ability grouping as appropriate.* 3.5 Ask tutors to read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g., *Presentation of individual reflective notes on analysis of the videos with the links:* **LSI:** Student teacher discusses Electronic Communications Laws and make group presentations. **LM &PCM:** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory configurations*	***LM &PCM*** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory configurations.* 3.4. In pairs or small groups, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Equal representation of both gender of different ethnicity and mixed ability grouping as appropriate.* 3.5 Read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g., *Presentation of individual reflective notes on analysis of the videos with the links:* **LSI:** Student teacher discusses Electronic Communications Laws and make group presentations. **LM &PCM:** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory configurations*	

	Note Encourage tutors to ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). Student teachers may use either concept maps or multimedia for the presentations 3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards), Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7. Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Legal Issues (Contract) II **LM &PCM** Laboratory configuration management I	**Note** Ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). Student teachers may use either concept maps or multimedia for the presentations 3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards), Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7. Brainstorm a plan that will be appropriate for the next lesson: **LSI** Legal Issues (Contract) II **LM &PCM** Laboratory configuration management I	

4. Evaluation and review of session: ➢ Tutors should Identifying critical friends to observe lessons and report at next session ➢ Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Ask tutors to identify any outstanding issues relating to lesson one from the course manual for clarification 4.3 Remind tutors to read lesson 11 from the PD manual and find relevant materials for the next session.	**Evaluation and review of session** 4.1 Identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Identify any outstanding issues relating to lesson one from the course manual for clarification 4.3 Read lesson 11 from the PD manual and find relevant materials for the next session.	15 mins

Tutor PD Session

Age Levels: JHS

Name of Subject/s:
1. PC Maintenance and Laboratory Management
Topic: Laboratory Configuration and Management III
2. Legal and Security Issues in ICT
Topic: Legal issues (Contracts) III

Year 4 **Semester 2**

Tutor PD Session for Lesson 11

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ A critical friend to share findings for a short discussion and lessons learned ➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➢ Overview of content and	**Introduction to the lesson** 1.1 Ask tutors to write any new thing they learnt in their last PD session i.e., lesson 10. **LM & PCM:** Laboratory Configuration and Management II **LSI:** Legal issues (Electronic Communications) II 1.2 Invite the tutors who observed Lesson 10 to share their experiences to the group.	**Introduction to the lesson** 1.1 Write any new thing you learnt in your last PD session i.e., lesson 10. **LM & PCM:** Laboratory Configuration and Management II **LSI:** Legal issues (Electronic Communications) II 1.2 As a critical friend who observed Lesson 10, share your experiences and the impact on your facilitating in class	20 mins

identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	1.3 Ask tutors to read the introductory sections of lesson 11 up to the learning outcomes and their corresponding indicators individually and then discuss in pairs (mixed pairs where applicable). *E.g.,* ***LM & PCM*** Student teachers will be introduced to laboratory setup/configuration. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes)**. **LSI** Student teachers will be introduced to contracts under Legal Issues. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes)**. 1.4 Ask tutors to i. Write down one distinctive aspect of the lessons from the course manual. e.g., ***LM & PCM*** Software tools to manage computer laboratories **LSI** Law of Contract (act 25, 1960)	1.3 Read the introductory sections of lesson 11 up to the learning outcomes and their corresponding indicators individually and then discuss in pairs (mixed pairs where applicable). *E.g.,* ***LM & PCM*** Student teachers will be introduced to laboratory setup/configuration. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes)**. **LSI** Student teachers will be introduced to contracts under Legal Issues. **(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes)**. 1.4 i. Write down one distinctive aspect of the lessons from the course manual. e.g., ***LM & PCM*** Software tools to manage computer laboratories **LSI** Law of Contract (act 25, 1960)	

	ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** Laboratory Management **LSI** Law of Contract	ii. Identify areas that need further clarification in the lesson. E.g., ***LM & PCM*** Laboratory Management **LSI** Law of Contract	
As this course is dealing with supporting and or assessing the Professional Teaching Portfolio Development and/or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.	1.5 Discuss with tutors the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., *i. Reminding student teachers to keep artefacts they create as part of their portfolios* *ii. Guiding student teachers on how to develop interviews to gather data.*	1.5 Discuss with your colleagues the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., *i. Reminding student teachers to keep artefacts they create as part of their portfolios* *ii. Guiding student teachers on how to develop interviews to gather data.*	
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.6 Ask tutors to identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., i. Creating videos from activities performed with learners, ii. Encouraging the marginalised learners to work with peers	1.6 Identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning. e.g., i. Creating videos from activities performed with learners, ii. Encouraging the marginalised learners to work with peers	
2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to	**Concept Development** 2.1 Ask tutors to list and share the major concepts in the lesson. *E.g.,* ***LM & PCM*** Software tools	**Concept Development** 2.1 List and share the major concepts in the lesson. *E.g.,* ***LM & PCM*** Software tools	15 mins

learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.	**LSI** Law of Contract 2.1.1 Ask tutors to discuss the major concepts listed in 2.1 above 2.2 Ask tutors to write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. *e.g.,* ***LM & PCM*** Some student teachers may have very limited skill and experience using a computer **LSI** Some student teachers might not have had knowledge and understanding of legal issues and its impact on ICT. 2.3 Ask tutors to identify some appropriate teaching strategies that can be used to best explain the new concepts identified. *E.g., Modelled Teaching: It is an instructional strategy that involves the tutor 'showing' student teachers how to do a task. The teacher shows the task while also breaking it down into small steps. This helps student teacher to see how to complete the task.*	**LSI** Law of Contract 2.1.1 Discuss the major concepts listed in 2.1 above 2.2 Write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. *e.g.,* ***LM & PCM*** Some student teachers may have very limited skill and experience using a computer **LSI** Some student teachers might not have had knowledge and understanding of legal issues and its impact on ICT. 2.3 Identify some appropriate teaching strategies that can be used to best explain the new concepts identified. *E.g., Modelled Teaching: It is an instructional strategy that involves the tutor 'showing' student teachers how to do a task. The teacher shows the task while also breaking it down into small steps. This helps student teacher to see how to complete the task.*	
3.Planning for teaching, learning and assessment activities for the lesson/s	**Planning for teaching, learning and assessment activities** 3.1. Using think-pair-share, ask tutors to watch the YouTube videos below on	**Planning for teaching, learning and assessment activities** 3.1. Using think-pair-share, watch the YouTube videos	40 mins

➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit links* to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning , subject specific examples should be provided for SL/HoD ➢ Resources: links to the existing PD Themes, for example, action	any internet enabled device available. **LSI** – Electronic Communication Act. https://youtu.be/YBGWK-XCAIM **LM &PCM** – Computer Laboratory Configuration https://youtu.be/3LMhibgyeg8 3.1.1 Ask tutors to discuss the content of the videos in relation to the teaching and learning activities in the course manuals. 3.2 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** Law of Contract ***LM &PCM*** Software tools to manage computer laboratory 3.3. Ask tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 1. *E.g.,* ***LSI*** Student teacher discusses law of contract and make group presentations for whole class discussions	below on any internet enabled device available. **LSI** – Electronic Communication Act. https://youtu.be/YBGWK-XCAIM **LM &PCM** – Computer Laboratory Configuration https://youtu.be/3LMhibgyeg8 3.1.1 Discuss the content of the videos in relation to the teaching and learning activities in the course manuals. 3.2 Note areas that require clarification and/or contribution. *E.g.,* ***LSI*** Law of Contract ***LM &PCM*** Software tools to manage computer laboratory 3.3. Discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 1. *E.g.,* ***LSI*** Student teacher discusses law of contract and make group presentations for whole class discussions	

research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability. ➢ Tutors should be expected to have a plan for the next lesson for student teachers	***LM &PCM*** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory software.* 3.4. In pairs or small groups, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Teaching and learning resources are devoid of gender biases.* 3.5 Ask tutors to read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g., **LSI:** Student teacher discusses law of contract and make group presentations. **LM &PCM:** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory softwares* **Note** Encourage tutors to ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). Remind	***LM &PCM*** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory software.* 3.4. In pairs or small groups, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Teaching and learning resources are devoid of gender biases.* 3.5 Read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g., **LSI:** Student teacher discusses law of contract and make group presentations. **LM &PCM:** *Student teachers create a wiki on "advantages and disadvantages of various computer laboratory softwares* **Note** Ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of females and males during the group work). Remind student teachers to use either	

	student teachers to use either concept maps, or multimedia for the presentations 3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards), Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7. Ask tutors to brainstorm a plan that will be appropriate for the next lesson: **LSI** Legal issues (Anti-spam & privacy) IV **LM &PCM** Laboratory configuration management III	concept maps, or multimedia for the presentations 3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards), Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7. Brainstorm a plan that will be appropriate for the next lesson: **LSI** Legal issues (Anti-spam & privacy) IV **LM &PCM** Laboratory configuration management III	
4. Evaluation and review of session: ➢ Tutors should Identifying critical friends to observe lessons and report at next session ➢ Identifying and addressing any outstanding	**Evaluation and review of session** 4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Ask tutors to identify any outstanding issues relating to lesson one from	**Evaluation and review of session** 4.1 Identify a critical friend to sit in their class during lesson and report on observation during the next PD session. 4.2 Identify any outstanding issues relating to lesson one	15 mins

issues relating to the lesson/s for clarification	the course manual for clarification 4.3 Remind tutors to read lesson 12 from the PD manual and find relevant materials for the next session.	from the course manual for clarification 4.3 Read lesson 12 from the PD manual and find relevant materials for the next session.	

Tutor PD Session

Age Levels: JHS
Name of Subjects:
1. Laboratory Management and PC maintenance **(LM & PCM)**
Topic: Laboratory Configuration and Management III
2. Legal and Security Issues in ICT **(LSI)**
Topic: Legal issues (Anti-spam & privacy) IV
Year 4

Semester 2

Tutor PD Session for Lesson 12 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	**Guidance notes on Leading the session.** *What the SL/HoDs will have to say during each stage of the session*	**Guidance Notes on Tutor Activity during the PD Session.** What PD Session participants (Tutors) will do during each stage of the session.	**Time in session**
1 Introduction to the session ➢ Review prior learning ➢ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➢ Overview of content and identification of any distinctive aspects of the lesson/s,	**Introduction to the lesson** 1.1 Ask tutors to review and reflect on the previous PD Session (Lesson 11) and how valuable it was on lessons taught. i.e., **LSI** Law of contract. **LM & PCM** knowledge of computer laboratory management software 1.2 Invite the critical friend who observed Lesson 11 to share their experiences and the impacts when facilitating in class.	**Introduction to the lesson** 1.1 Review and reflect on the previous PD Session (Lesson 11) and how valuable it was on lessons taught. i.e., **LSI** Law of contract. **LM & PCM** knowledge of computer laboratory management software 1.2 As a critical friend who observed Lesson 11, share your experiences and the impact on your facilitating in class	20 mins

NB The guidance for SL/HoD should identify, address and *provide explanations* for any areas where tutors might require clarification on an aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session	1.3 Ask tutors to read the introduction, lesson description and the purpose of lesson 12 in the course manual and indicate how they are related to student teachers' relevant previous knowledge *E.g.,* **LSI** In this lesson, Students will be exposed to Anti-Spam and privacy under Legal issues. (National Teachers' Standard: **1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF**: Pillar crosscutting issues; Core skills, Professional values and attitudes. **LM & PCM** This lesson is to expose student teachers to Health and safety when working with computers **Distinctive Aspects** 1.4. Ask tutors to be in pairs and i. Identify the distinctive aspects of the lesson. e.g., **LSI** Anti-Spam Laws Privacy Vs. Civil Liberties ***LM & PCM*** Health Safety ii. Identify areas that need further clarification in the lesson. E.g.,	1.3 Read the introduction, lesson description and the purpose of lesson 12 in the course manual and indicate how they are related to student teachers' relevant previous knowledge *E.g.,* ***LSI*** In this lesson, Students will be exposed to Anti-Spam and privacy under Legal issues. (National Teachers' Standard: **1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF:** Pillar crosscutting issues; Core skills, Professional values and attitudes. **LM & PCM** This lesson is to expose student teachers to Health and safety when working with computers **Distinctive Aspects** 1.4. Pair with a colleague and i. Identify the distinctive aspects of the lesson. e.g., **LSI** Anti-Spam Laws Privacy Vs. Civil Liberties ***LM & PCM*** Health Safety ii. Identify areas that need further clarification in the lesson. E.g.,	

	LSI The differences between Privacy and Civil Liberties Threat Actors and Exploits ***LM & PCM*** *Health and safety issues when working with computers* *NB: Remind tutors to plan for their teaching as they go through the PD session. Using YouTube video to aid the lesson.*	**LSI** The differences between Privacy and Civil Liberties Threat Actors and Exploits ***LM & PCM*** *Health and safety issues when working with computers* *NB: Plan for your teaching as you go through the PD session. E.g., using YouTube video to aid the lesson.*	
As this course is dealing with supporting and/or assessing the Professional Teaching Portfolio Development and/or the Classroom Enquiry and Action Research Project Report writing, tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.	1.5 Take a lead role and discuss with tutors the development of components of the PTP and Classroom Enquiry and Action Research report writing by the student teachers. E.g., a. Reflecting with the student teachers their experiences from the school on issues on GESI and the use of ICT tools and how these influence their values of teaching and learning. b. Guiding the student teacher on how to collect data on learners during lesson delivery Refer to STS Year Three School Placement Handbook. Table 8.2.7.2 pg. 93, 115.	1.5 Discuss together the development of components of the PTP and Action Research report writing by the student teachers. E.g., a. Reflecting with the student teachers their experiences from the school on issues on GESI and the use of ICT tools and how these influence their values of teaching and learning. b. Guiding the student teacher on how to collect data on learners during lesson delivery Refer to STS Year Three School Placement Handbook. Table 8.2.7.2 pg. 93, 115.	
For each session remember this is the final semester before Students start teaching	1.6 Ask tutors to identify some ways by which student teachers can integrate ICT, GESI and CCI	1.6 Identify some ways by which student teachers can integrate ICT, GESI and CCI into their teaching and learning.	

provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc	into their teaching and learning. e.g., a. Recording students readings, b. Giving equal opportunities and treatments to all learners including the marginalised.	e.g., a. Recording students readings, b. Giving equal opportunities and treatments to all learners including the marginalised.	
2 Concept Development (New learning likely to arise in lesson/s) : ➢ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors	**Concept Development** 2.1 Ask tutors to identify the concepts in lesson 12 from the course manuals for discussion. I.e., **LSI** Legal issues (Anti-spam & privacy) IV **LM & PCM** Laboratory Configuration and Management III 2.2 Ask tutors to write a possible barrier in learning the concepts (Access Control Fundamentals and Building/ Upgrading a computer) above for discussion. *E.g.,* **LSI** *Some student teachers might not have had knowledge and understanding of Anti-Spam and privacy under Legal Issues and its impact on ICT* **LM & PCM** *Student teachers may have had little time to Configure and Manage the ICT Laboratory* 2.3 Ask tutors to identify appropriate teaching strategies that can best	**Concept Development** 2.1 Identify the concepts in lesson 12 from the course manuals for discussion. I.e., **LSI** Legal issues (Anti-spam & privacy) IV **LM & PCM** Laboratory Configuration and Management III 2.2 Write a possible barrier in learning the concepts (Access Control Fundamentals and Building/ Upgrading a computer) above for discussion. *E.g.,* **LSI** *Some student teachers might not have had knowledge and understanding of Anti-Spam and privacy under Legal Issues and its impact on ICT* **LM & PCM** *Student teachers may have had little time to Configure and Manage the ICT Laboratory* 2.3 Identify appropriate teaching strategies that can	15 mins

	explain the new concepts identified. *E.g.,* ***I Do, We Do, You Do method*** *is a scaffolding strategy that provides gradual release of responsibility from the teacher to the student.*	best explain the new concepts identified. *E.g.,* ***I Do, We Do, You Do method*** *is a scaffolding strategy that provides gradual release of responsibility from the teacher to the student.*	
3.Planning for teaching, learning and assessment activities for the lesson/s ➢ Reading and discussion of the teaching and learning activities ➢ Noting, addressing, and explaining areas where tutors may require clarification ➢ Noting opportunities for making *explicit* links to the Basic School Curriculum ➢ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➢ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two	**Planning for teaching, learning and assessment activities** 3.1. Ask tutors to watch the YouTube videos with the links below. **LSI** – Anti-Spam Laws https://youtu.be/kM66p3owl5w **LM &PCM** – Health and safety when working with computers https://youtu.be/T8qGO7XQ0Uw 3.1.1 Ask Tutors to read through the teaching and learning activities outlined in lesson 12 from the courses manuals and relate it to the video watched for group discussion. 3.2 Ask Tutors to note areas that require clarification and/or contribution. *E.g.,* ***LSI*** *Anti-Spam Laws Privacy Civil liberties* ***LM &PCM*** Health safety	**Planning for teaching, learning and assessment activities** 3.1. Watch the YouTube videos with the links below **LSI** – Anti-Spam Laws https://youtu.be/kM66p3owl5w **LM &PCM** – Health and safety when working with computers https://youtu.be/T8qGO7XQ0Uw 3.1.1 Read through the teaching and learning activities outlined in lesson 12 from the courses manuals and relate it to the video watched for group discussion. 3.2 Note areas that require clarification and/or contribution. *E.g.,* ***LSI*** *Anti-Spam Laws Privacy Civil liberties* ***LM &PCM*** Health safety	

opportunities to use continuous assessment to support student teacher learning ➢ Resources: ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Youtube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ➢ Tutors should be expected to have a plan for the next lesson for student teachers	3.3. Ask tutors to discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 3. *E.g.,* ***LSI*** *Student teachers explain these concepts Anti-Spam Laws* *Privacy, Civil liberties* ***LM &PCM*** Student teachers individually make reflective notes on "***risks exposed to when repairing computers and their mitigation measure*** 3.4. In pairs or small groups, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Paying attention to all learners, especially girls and students with Special* *Educational needs, ensuring their progress, NTS 3f: 1a.* 3.5 Ask tutors to read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g.,	3.3. Discuss how the different activities would be carried out in both CoE and the Basic School Curriculum (BSC) to achieve the LOs and the LIs of the course manual for lesson 3. *E.g.,* ***LSI*** *Student teachers explain these concepts Anti-Spam Laws* *Privacy, Civil liberties* ***LM &PCM*** Student teachers individually make reflective notes on "***risks exposed to when repairing computers and their mitigation measure*** 3.4. In pairs or small groups, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. E g., *Paying attention to all learners, especially girls and students with Special* *Educational needs, ensuring their progress, NTS 3f: 1a.* . 3.5 Read and discuss the assessment activities in the course manuals and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g.,	

	Presentation of individual reflective notes on analysis of the videos with the links: **LSI** – Anti-Spam Laws https://youtu.be/kM66p3owl5w **LM &PCM** – Health and safety when working with computers https://youtu.be/T8qGO7XQ0Uw **Note** Encourage tutors to ask student-teachers to work in groups (in mixed ability, and pay attention to the composition of cultural diversity during the group work). 3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards) as well as Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7 Ask tutors to brainstorm a plan that will be appropriate for the next lesson:	*Presentation of individual reflective notes on analysis of the videos with the links:* **LSI** – Anti-Spam Laws https://youtu.be/kM66p3owl5w **LM &PCM** – Health and safety when working with computers https://youtu.be/T8qGO7XQ0Uw 3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. *E.g.,* A personal Computer, Instructional Laboratories (with multimedia equipment and smartboards) as well as Videos *Make sure the resources are enough and appropriate to all learners (especially people with SEN).* 3.7 Brainstorm a plan that will be appropriate for the next lesson:	

	LSI Legal issues (Anti-spam & privacy) IV **LM &PCM** Laboratory Configuration and Management III	**LSI** Legal issues (Anti-spam & privacy) IV **LM &PCM** Laboratory Configuration and Management III	
4. Evaluation and review of session: Identifying and addressing any outstanding issues relating to the lesson/s for clarification	**Evaluation and review of session** 4.1 Ask tutors to identify any outstanding issues relating to lesson 12 and any other lesson from the course manual for clarification	**Evaluation and review of session** 4.1 Identify any outstanding issues relating to lesson 12 from the course manual for clarification	15 mins

Appendix 1. Course Assessment Components, detail in the Revised NTEAP Toolkit (Sept. 21)

COMPONENT	SUBJECT PROJECT 1 per course per semester, individual or collaborative student teacher work.	SUBJECT PORTFOLIO 1 per course per semester, individual or collaborative student teacher work.
WHAT IS IT?	**The Subject project** is an assignment designed to enable student teachers to demonstrate achieving one or more of the CLOs, progress towards achieving identified NTS, development of knowledge and understanding of: the Basic School Curriculum, GESI responsiveness, using ICT and 21stC skills	**The Subject Portfolio** is the deliberate collection of student teachers' work that has been selected and organized for a particular subject to show student teacher's learning and progress to achieving the CLOs.
CONSTITUENTS	**Introduction:** a clear statement of aim and purpose **Methodology**: what the student teacher has done and why to achieve the aim and purpose of the project **Substantive or main section**: Presentation of any artifacts, experiments, TLMs created for the project; presentation, analysis, and interpretation of what has been done, learned, or found out in relation to focus of the project. **Conclusion:** Statement of the key outcomes of the project; reflection on what the student teacher has learnt	***Either* 3 items of work produced during the semester *or* 2 items of work and a mid-semester assessment** The items of work to be selected by student teachers, with tutor support, during the semester as best examples of their progress. For each item they select, Student teacher's need to reflect on: progress against identified NTS; achieving CLOs; increased knowledge and understanding of the Basic School Curriculum, GESI responsiveness, integration of ICT and how they could have approached developing the item differently to achieve a better outcome The mid-semester assessment : case study, reflective note, quiz etc.
WEIGHT	**Overall weighting of project = 30%** **Weighting of individual parts of project out of 100** · **Introduction – 10** · **Methodology – 20**	**Overall weighting of project = 30%** **Weighting of individual parts of portfolio out of 100** · **Each item of work - 30** · **Mid semester assessment - 30 - *if applicable***

	· **Substantive section – 40** · **Conclusion – 30**	· **Presentation and organisation of portfolio - 10**
EXAM	**End of semester Exam, weight 40%. To assess:** achievement of one or more of the CLOs, progress towards achieving identified NTS, development of knowledge and understanding of the Basic School Curriculum, ability to use GESI responsive approaches and to integrate ICT and 21st C skills in teaching and learning	

Examples of course assessment components

Subject portfolio examples of items of work

Literacy:

- Reading log of children's literature
- Review of different types of writing and how to teach them
- Book summaries/reports
- Report on different purposes for and types of reading or writing
- Vocabulary achievement
- Schemes of work

Mathematics:

- Samples of problem solving with written explanations of how the problems were solved and how this can be taught
- Charts and graphs with written explanations of how and why they were created and how this can be taught
- Computer analyses conducted as well as use of software to teach mathematics and how effective they are
- Use indigenous knowledge in mathematics teaching.
- Schemes of work

Science

- Lab reports,
- Research reports
- Charts, graphs created
- Designs, TLMs, posters, worksheets
- Integrating indigenous knowledge into science teaching
- Schemes of work

Subject project examples

- *Pedagogic Studies.* What are the qualities you need to develop to be a good teacher? Reflect on your personal experiences, values, and background, the NTS and the expectations of, and vision for, the B.Ed.

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