

# Tutor Professional Development Handbook: B.Ed. in Initial Teacher Education - ICT Year 2 Semester 1

HANDBOOK FOR COORDINATORS





The Government of Ghana



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# ***Foreword***

I am grateful that you are reading and using this Professional Development Handbook for the Bachelor of Education (B.Ed.) in Initial Teacher Education Year 2 Semester 1 courses.

These Professional Development Handbooks are at the heart of Ghana’s ambitious teacher education reforms and have played a key role in the successes achieved to date. The Handbooks aim to ensure that tutors in Colleges of Education are reflecting critically on their methods of teaching and learning and supporting each other to implement the B.Ed. in line with the National Teacher Education Curriculum Framework and National Teacher Education Assessment Policy.

Tutors act as role models for student teachers. If tutors use the ‘lecture-method’ then this is what student teachers will imitate when they enter basic school classrooms. If tutors use a wide variety of interactive approaches, aligned with the National Teachers’ Standards, then these approaches will become standard behaviour for beginning teachers when they graduate.

This latest set of Professional Development Handbooks, developed by four mentoring universities (Kwame Nkrumah University of Science and Technology, University of Education, Winneba, University for Development Studies and University of Ghana) and tutors from their affiliated Colleges of Education, are the first set of Handbooks which include specific cross cutting sessions in Gender, Equality and Social Inclusion (GESI) and Information and Communications Technology (ICT).

The introduction of GESI in these Handbooks is an important step forward in ensuring that our teacher education system is responsive and genuinely promotes equality and inclusion whilst the inclusion of ICT represents Ghana’s aim of ensuring that all teachers and learners are digitally literate.

As with previous Handbooks I would like to take this opportunity to thank both the Ghana Tertiary Education Commission and Mastercard Foundation for their assistance and support in making this work possible.

Robin Todd  
Executive Director, T-TEL

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## Year Two Semester One

### Writing the weekly PD sessions: Guidance for the Subject

#### Writing Leads (SWL).

- The PD sessions are an important way to ensure effective implementation of the key principles and practices of the B.Ed. *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.*
- The sessions need to provide *the PD* opportunity for tutors fully understand what they need to teach and to planning 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 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 portfolio and project assessment components if these are not written into the course manuals (See Appendix 2: Course Assessment Components at a Glance).
    - integrating the use of continuous assessment designed to support student teacher learning in each session
- The PD session template provides the frame for SWL to write the guidance for the Subject Leads (SL)/HoD on how to lead and support the professional development of tutors in the weekly sessions for student teachers
- Age level specialisms are introduced in Y2S1. To ensure appropriate subject and age level focus for the PD sessions:
  - there will be subject specialists 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
  - where there are different age levels direct reference needs to be made to the course manuals for activities for each age level
- STS is six days in year 2 Semester 1 and involves observation and working with small groups subjects should include STS activities
- SL/HoD need to have details of the resources needed for the activities

## GENDER, EQUALITY AND SOCIAL INCLUSION (GESI)

### Tutor PD Session for Lesson 001 in the Course Manual

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1.0 Introduction to GESI</b></p>	<p>1.1 Task tutors to individually read the introduction (to GESI) and learning outcomes below and invite opinions from both male and female tutors and those with special needs where applicable.</p> <p><b>Introduction to GESI:</b>  <b>a. Purpose of GESI in the specialisms</b>            Communities all over the world consist of diverse individuals and social groupings that have different needs, strengths, opportunities, and concerns as a result of differences in culture, gender, abilities, economic and social status. As teacher educators, it is important to understand</p>	<p>1.1 Read and discuss the introduction to (to GESI) and the learning outcomes below and provide your opinion on same.</p> <p><b>Introduction to GESI:</b>  <b>a. Purpose of GESI in the specialisms</b>            Communities all over the world consist of diverse individuals and social groupings that have different needs, strengths, opportunities, and concerns as a result of differences in culture, gender, abilities, economic and social status. As teacher</p>	<p><b>20 mins</b></p>

	<p>the uniqueness of the diverse groups in the classroom and ensure that every individual is supported to attain quality education. Towards promoting equal opportunity for females and males as well as all other disadvantaged groups in the classroom, GESI in schools is being championed. Tutors need to have a clear understanding of GESI issues to be able to integrate these in the teaching and learning process and other aspects of college life and to encourage student teacher to do same during STS.</p> <p><b>b. Overview of GESI and related concepts</b>  This session seeks to expose tutors in all the specialisms (EG, UP and JHS) to the concept GESI and related issues such as Gender, Equality, Equity etc to enable them appreciate issues of stereotypes and work towards challenging traditional gender roles as well as dealing with their own unconscious biases so they can attend to the diverse needs of all learners in the classroom and in the College.</p>	<p>educator, it is important that you understand the uniqueness of the diverse groups in the classroom and ensure that every individual is supported to attain quality education. Towards promoting equal opportunity for females and males as well as all other disadvantaged groups in the classroom, GESI in schools is being championed. You need to have a clear understanding of GESI issues to be able to integrate these in the teaching and learning process and other aspects of college life and to encourage student teacher to do same during STS.</p> <p><b>b. Overview of GESI and related concepts</b>  This session seeks to expose you to the concept GESI and related issues such as Gender, Equality, Equity etc to enable you appreciate issues of stereotypes and work towards challenging traditional gender roles as well as dealing with your own unconscious biases so you can attend to the diverse needs of all learners in the classroom and in the College.</p>	
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	<p><b>c. Session learning outcomes</b></p> <p>By the end of this session, tutors will be able to</p> <ol style="list-style-type: none"> <li>i. demonstrate understanding of the concept GESI and related issues.</li> <li>ii. apply these concepts in their teaching and general practices.</li> <li>iii. support student teachers to understand GESI issues and how to apply them during STS.</li> </ol> <p>1.2 Task tutors to identify what the acronym GESI stands for and explain what it means.</p> <p><b>Gender, Equality and Social Inclusion</b> is a concept that addresses unequal power relations experienced by people on the grounds of gender, wealth, ability, location, ethnicity, language and agency or a combination of these dimensions.</p> <p>1.3 Using talk for learning strategies (concept cartoons, storytelling, role play discussion etc), ask tutors in their subject groups to explain any <u>two concepts</u> related to GESI. Allow tutors to use their phones/laptops to search for how each concept is related to education. <a href="http://www.google.com">www.google.com</a></p>	<p><b>c. Session learning outcomes</b></p> <p>By the end of this session, you will be able to</p> <ol style="list-style-type: none"> <li>i. demonstrate understanding of the concept GESI and related issues.</li> <li>ii. apply these concepts in your teaching and general practices.</li> <li>iii. support student teachers to understand GESI issues and how to apply them during STS.</li> </ol> <p>1.2 Identify what the acronym GESI stands for and explain what it means.</p> <p>1.3 In your subject groups, explain any <u>two concepts</u> related to GESI. (you may use your phones/laptops to search for how each concept is related to education from <a href="http://www.google.com">www.google.com</a>) Adapt differentiated approaches to explain concepts (sketches, role play, story etc).</p>	
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	<p>Allow tutors to explain concepts using differentiated approaches (sketches, role play, story etc).</p> <p>Employ a creative approach, such as quizzes to capture attention.</p> <p><b>Gender</b> is the relationship between men and women and the roles and responsibilities they have in the society. Example in Ghana it is socially accepted that cooking is the role of women and providing upkeeping money for the family is the role of men.</p> <p><b>Equality</b> is the similarity of treatment as it is legally and constitutionally given. Example is providing <b>all</b> children (irrespective of ability, gender, socio-economic background etc.) with opportunities to achieve quality learning outcomes.</p> <p><b>Equity</b> is the state of being fair or just in terms of provision of resources, support or opportunities base on individual learners need; the result is equality in achievement.</p> <p><b>Inclusion</b> is the process of valuing all individuals and leveraging their diverse talent, not in spite of their differences, but because of their differences. Example Ensuring that <b>all</b> students (boys, girls and SEN) are given equal opportunities</p>		
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	<p>to participate in the classroom.)</p> <p><b>Gender Equality</b> is a state where males and females have equal rights, life prospects and opportunities to shape their own lives and contribute to society.</p> <p><b>Social Inclusion</b> is the process of improving the terms of participation for people who are disadvantaged, through enhancing opportunities and access to resources.</p> <p>1.2 Ask tutors to reflect on their understanding of GESI and justify the need for GESI in education.</p> <p>For instance, the classroom and school environment have been skewed in ways that condone gender bias and promote exclusion.</p> <p><b>Example 1:</b> Male characters are often represented than females in TLMs and textbooks.</p> <p><b>Eg. 2</b> Persons with SEN are often disadvantaged during some classroom activities: the blind learner loses out when pictures are used. The Deaf lose out when only verbal language is used.</p> <p><b>Refer to Appendix 1.</b></p>	<p>1.2 Reflect on your understanding of GESI and justify its importance in education.</p>	
<p><b>2. Identification and discussion of new learning</b></p>	<p>2.1 Through questioning, ask tutors to identify and discuss how each new GESI concept they have acquired could be</p>	<p>2.1 identify and discuss how the new GESI concepts you have acquired could be useful in your teaching and general school life.</p>	<p><b>15 mins</b></p>

<p><b>Potential barriers to learning for student teachers</b></p>	<p>useful in their teaching and general school life.  <i>Eg. a) Inclusion: mix ability/gender grouping; involving all categories of learners in every activity.</i></p> <p><i>Eg. b) Equity: provide support and resources in line with the needs of each learner.</i></p> <p><b>N/B:</b> Encourage tutors to support student teachers identify how each concept could be used during STS.</p> <p>2.2 Using think-pair-share ask tutors to identify possible barriers to learning GESI for student teachers and how to address them.</p> <p>Examples may include:  <b>Misconceptions:</b> <i>those certain roles are for specific gender; boys are brave and can dissect a rabbit and girls are good cooks than boys. This can be addressed by citing instances where girls demonstrate bravery and boys have been better cooks.</i></p> <p><b>Negative attitudes:</b> <i>the perception that persons with SEN are low achievers. Address this by giving examples of persons with SEN who have excelled in various aspects of life (Hellen Keller, Professor Danaah)</i></p>	<p>2.2 Reflect individually, share with a colleague and then the entire group possible barriers to learning GESI for student teachers and how to address them.</p> <p>Examples may include:  <b>Misconceptions:</b> <i>those certain roles are for specific gender; boys are brave and can dissect a rabbit and girls are good cooks than boys. This can be addressed by citing instances where girls demonstrate bravery and boys have been better cooks.</i></p> <p><b>Negative attitudes:</b> <i>the perception that persons with SEN are low achievers. Address this by giving examples of persons with SEN who have excelled in various aspects of life (Hellen Keller, Professor Danaah)</i></p>
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	(Tutors may share their experience of unfair treatment/unconscious biases that constitute barriers to GESI).	(Tutors may share their experience of unfair treatment/unconscious biases that constitute barriers to GESI).	
<b>3.0 Planning for teaching, learning and assessment activities for the lesson/s</b>	<p>3.1 Using talk for learning (small group discussion, plenary discussion) guide tutors to identify and discuss GESI responsive practices that support in creating GESI friendly school and classroom environments. (reference to college context)</p> <p><i>Eg. a) Involving men and women equally in decision making</i></p> <p><i>b) ensuring that all college facilities are accessible by everyone (abled bodied and persons with disability),</i></p> <p><i>c) Equitable allocation of resources among all college actors (males, females, minority groups) etc</i></p> <p>3.2 Ask tutors to brainstorm aspects of the basic school curriculum that need improvement in the area of GESI.</p> <p><i>E.g. a) Play activities: girls and boys could play soccer and ampe.</i></p> <p><i>Eg. b) decision making school prefects are mostly boys: girls and students with special education needs could equally be appointed school prefects.</i></p>	<p>3.1 Identify and discuss GESI responsive practices that support in creating GESI friendly school and classroom environments. (Reference to college context).</p> <p><i>Eg. a) Involving men and women equally in decision making</i></p> <p>3.2 Brainstorm aspects of the basic school curriculum that need improvement in the area of GESI.</p> <p><i>E.g. a) Play activities: girls and boys could play soccer and ampe.</i></p>	<b>30 mins</b>

<p>Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</p> <p>GESI responsive assessment</p> <p>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</p>	<p>3.3 Task tutors to discuss in their subject groups and come out with strategies on how GESI, ICT, and 21<sup>st</sup> Century skills can be integrated in their specific subject areas.</p> <p>3.4 Lead tutors to identify and possible strategies to make subjects projects and subject portfolios GESI responsive.</p> <p><i>Eg. a) Equitable distribution of relevant resources for the subject projects</i></p> <p><i>Eg. b) Ensure projects content do not portray GESI biases and stereotypes. In grouping students for subject projects ensure mix ability/gender groupings</i></p> <p><b>Note</b> Remind tutors to consciously ensure GESI responsiveness in conducting continuous assessment in their various disciplines.</p> <p>Eg a) ensure that leadership roles are assigned equally among females, males and students with special education needs (SEN) when assessments (subject projects) are done in groups.</p> <p>Eg. b) Ensure equitable distribution of resources among males, female and (SEN).</p>	<p>3.3 Identify strategies on how GESI, ICT, and 21<sup>st</sup> Century skills can be integrated in their specific subject areas.</p> <p>3.4 identify and discuss possible strategies to make subjects projects and subject portfolios GESI responsive.</p> <p><i>Eg. a) Equitable distribution of relevant resources for the subject projects</i></p> <p><b>Note:</b> Make conscious efforts to ensure GESI responsiveness in conducting continuous assessment for student teachers (eg subject project)</p>	
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	3.5 Task tutors in their subject groups, to identify and discuss the links to existing GESI resources such as the Gender Handbook for CoEs	3.5 identify and discuss the links to existing GESI resources such as the Gender Handbook for CoEs  Read GESI resources for new ideas to improve your lesson preparation and classroom practice.	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>Tutors need to identify critical friends to observe lessons and report at next session.</li> <li>Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p>4.1 Invite critical friend (male/female) to observe a lesson using the observation checklist and give feedback on next PD session. <i>Example: equal involvement of both males, females and SEN learners.</i></p> <p>4.2 Write the concepts learned on pieces of paper and call tutors at random to pick one and explain to the whole group. Give further clarification where applicable.</p> <p><b>Advance Preparation for lessons</b></p> <p>4.3 Encourage tutors to read GESI related resources for new ideas to improve their lesson preparation and classroom practices.</p>	<p>4.2 Invite critical friend (male/female) to observe a lesson using the observation checklist and give feedback on next PD session. <i>Example: equal involvement of both males, females and SEN learners</i></p> <p>4.2 Pick and explain GESI concepts learnt giving examples in classroom and out of class situations.</p> <p><b>Advance Preparation for lessons</b></p> <p>4.3 Read GESI related resources for new ideas to improve their lesson preparation and classroom practices.</p>	<b>15 mins</b>

## **GESI Appendix 1 – UNDERSTANDING GENDER - TERMS AND CONCEPTS**

**Sex** is aspect of one's biological makeup that depends on whether one is born with distinct male or female genitals and a genetic programme that releases either male or female hormones to stimulate the development of one's reproductive system. Sex is biologically defined. It is determined by birth. It is universal and unchanging.

**Gender** is simply the relationship between men and women and the roles and responsibilities they have in the society in which they live. It refers to the socially constructed differentiated roles assigned to both sexes, whereby both men and women are expected to conform to and perpetuate the roles and behaviors that have been assigned to them. Gender is socially constructed and differs between and within cultures. It is about the differences in roles, responsibilities, opportunities, needs and constraints of men and women.

### **Some Distinctive Features of Gender:**

- Deals with the relationship between men and women
- Deals with the roles and responsibilities men and women are assigned by their society
- Both men and women are expected to conform to and perpetuate the roles and behaviors that have been assigned them
- It involves the ranking of traits and activities so that those associated with men are normally given greater value
- It is historical
- It is learned, and therefore can be unlearned
- It takes place within different macro and micro spheres such as the state, the labour market, schools, the media, the law, the family, household and interpersonal relations
- It interacts with race/ethnicity, age, disability, status, economic factors, etc. Meaning these factors may present different gender dynamics and expectations.

**Gender Roles** define what is considered appropriate for men and women within a given society. It also means socially assigned roles of men and women and informs the division of labour. It involves the relation to power (how it is used, by whom and how it is shared). It varies greatly from one culture to another and change over time. Gender roles may vary from one social group to another within the same culture.

**Gender Relation** refers to how men and women relate to each other, resulting in manifestations of gender based power. This arises from the roles men and women are expected to play and the impact of their interactions. The family is a good example, as men assume the earner and leader roles, women assume the domestic and care giving roles. These power relations are uneven because the male has more power in making decisions than females. If we do not conform to roles prescribed to us by society, we are seen to be deviant by society. Power relations always result in one party being worse off than the other

and create social imbalances. This means inequality between men and women that is acquired in the process of socialisation.

**Gender Responsiveness** refers to outcomes that reflect an understanding of gender roles and inequalities and which make an effort to encourage equal participation and equal and fair distribution of benefits.

Gender responsiveness is accomplished through gender analysis and gender inclusiveness. It means creating an environment that reflects an understanding of the realities of women and men's lives and address the issues accordingly. Being gender responsive means having the capacity to analyse a specific context from a gender perspective, to develop gender sensitive course outline, lesson notes, teaching learning materials and to allocate budgets in a gender-responsive way.

**Gender Stereotyping** refers to the practice of ascribing to an individual woman or man specific attributes, characteristics, or roles by reason only of her or his membership in the social group of women or men.

**Gender Stereotype** simply means the constant portrayal, such as in the media, conversation, jokes or books, of women and men occupying social roles according to a traditional gender role or division of labour. Gender stereotyping is wrongful when it results in a violation or violations of human rights and fundamental freedoms.

**Equality** refers to the equal rights, responsibilities and opportunities of men, women and persons with special education needs and disabilities. It pertains to equal distribution of resources and benefits and participation of women and men in all areas of society. It also means giving equal weight to the knowledge, experience and values of both women and men in society. Equality between men and women is a human rights issue and a pre-condition for sustainable development. It is based on the principle that, though men and women are not the same biologically, they are equal as human beings.

**Equity** is based on principle of fair share. It is a stage in the process of achieving equality. Equity refers to a fair sharing of resources, opportunities and benefits according to a given framework. It is one of the measures of equality, but not the only one. Equity is measurable and manifested in parity. Experience illustrates that equity is used instead of equality within institutions.

**Equality vs Equity.** Equality refers to similarity of treatment as it is legally, constitutionally and divinely given. It is a fundamental right. And it is often the goal. Equity is often viewed as a favour, whereas equality is a fundamental right.

**Empowerment** is a process through which women, men and persons with disability in disadvantaged positions increase their access to knowledge, resources, and decision-making power, and raise their awareness of participation in their communities, in order to reach a level of control over their own environment.

**Gender Mainstreaming** is the concept of bringing gender issues into the mainstream of society. It was established as a global strategy for promoting gender equality in the Platform

for Action adopted at the United Nations Fourth World Conference on Women held in Beijing in 1995. The conference highlighted the necessity to ensure that gender equality is a primary goal in all areas of societal development. In July 1997, the United Nations Economic and Social Council (ECOSOC) defined the concept of gender mainstreaming as follows: "Mainstreaming a gender perspective is the process of assessing the implications for women and men and persons with special education needs and disability of any planned action, including legislation, policies or programmes, in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as of men an integral part of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres, so that women and men benefit equally, and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality".

**Mainstreaming** in education involves placing learners with special education needs and disability in a general education classroom with a special education teacher as a co-teacher giving them the same opportunities as other learners to access instruction, gain knowledge, and to participate in the academic and socializing environments that a school offer.

**Inclusion** is the process of valuing all individuals and leveraging their diverse talent, not despite their differences, but because of their differences. Inclusion requires a conscious effort to involve all human resources in the fabric and mission of the institution or school as a critical value addition.

**Disempowerment** is any action, policy development and/or relief program or process through which women's, men's and persons with disabilities priorities, needs and interests are further ignored, reducing their participation in decision- making and representing an obstacle to their economic, political and social improvement, or to their academic progress and growth attainment.

**Patriarchy** is an ideology and social system that propagates male supremacy or male power and superiority over women as natural. The operating premise is that men are biologically, intellectually and emotionally superior to women. Conversely, women are considered to be weak and dependent on men for protection, guidance, upkeep and general survival. The ideology is institutionalised through active formal and informal systems, backed up by ideas, beliefs, religion, practices and culture – and sometimes by force. A patriarchal ideology is the key factor in the structural gender inequality in most of our societies.

**Gender Neutrality** is the claim some people make when they want to present themselves as not practising gender-based discrimination. What it often masks, however, is the failure to take gender issues into consideration, and this can translate into discrimination against girls as it fails to pay attention to the distinct and special needs of girls and boys.

**Gender blindness** is the failure to recognise the differences between males and females and therefore leading to failure to provide for the differences.

**Other concepts/ terminologies:**

**Marginalisation** - exclusion in processes such as decision-making. This results in women's inability to articulate their needs and interests.

**Discrimination** - differential treatment based on factors over which an individual has no control, e.g. sex, disability, socio-economic status, tribe, nationality, race, etc.

**Objectification** - assignment of less than human status and treatment to women.  
**Infantilisation** - categorising women with children, i.e. having no legal decision making powers, voting rights or capacity to enter into contracts.

**Dispossession** - through patriarchal systems of property inheritance, where in some cultures women are not allowed to inherit wealth.

**Segregation** occurs when students with disabilities are educated in separate environments (classes or schools) designed for students with impairments or with a particular impairment.

**Exclusion** occurs when an individual or group is denied the right to access (facilities, education) or participate in educational or social activity on the bases of ability, gender, health or social status.

**Value Assignment** - determining a woman's value by the sex and number of children she bears.

**Violence** - physical, mental and emotional abuse, which is culturally accepted as correcting a wife or harmful practices such as female genital mutilation to subdue female sexual urge

**Poor** refers to households or persons who consume an average of less than 2,220 calories of food per person per day. (according to Nepal Living Standard Survey, 2010/11)

**Vulnerable Groups** refer to groups that experience a higher risk of poverty and social exclusion than the general population. Ethnic minorities, migrants, person with disabilities, the homeless, those struggling with substance abuse, isolated elderly people and children all often face difficulties that can lead to further social exclusion, such as low levels of education and unemployment or underemployment.

**Gender Impact Analysis/Assessment** examines policies and practices to ensure they have beneficial effects on women and men. It identifies the existence and extent of differences between women and men and the implications of these differences for specific policy areas.

**Social Exclusion** describes the experience of groups that are systematically and historically disadvantaged because of discrimination based on gender, ethnicity or religion.

**Gender Responsive Budget** refers to government planning, programming and budgeting that contributes to the advancement of gender equality and the fulfillment of women's rights. It entails identifying and reflecting interventions to address gender gaps in sector and local government policies, plans and budgets.

**Disaggregated Data** refers to distinguishing men and women, ethnic minorities, people with disability, people with HIV and other excluded people in the data to reveal quantitative differences between them.

### **Why the need for GESI in education?**

The need to deliberately address gender and inclusion in the classroom arises because, over time, the classroom and school environment have been skewed in ways that condone gender bias and promote exclusion. Below are examples of practices in the classroom that reinforce traditional gender roles and stereotypes:

- a. Male characters are often represented than females in TLMs
- b. Textbooks have more males than females in illustrations
- c. Illustrations in TLMs often portray gender stereotypes (male CEO and decision makers, females in domestic roles etc.)
- d. Persons with disability are underrepresented
- e. When persons with disability are featured, they are portrayed with negative stereotypes
- f. (Cursed, beggars or burden on society)
- g. Use of male pronouns to represent everyone (ignoring the existence of females)
- h. Persons with disability are identified by their disability. Often their disability is put before them – for example, deaf man, "handicapped" child, blind girl etc

### **Some misconceptions of GESI in Schools and out of Schools and how to address them**

- a. GESI seeks to favour women
- b. GESI affects the learning outcomes of the “normal” learner
- c. Society thinks education is for men
- d. Concerns only persons with disabilities
- e. Quality inclusion is expensive
- f. Only schools are responsible for the implementation of GESI
- g. Persons with disability cannot cope in mainstream school.
- h. Disability is contagious

### **Ways the misconceptions can be addressed**

These can be addressed through:

- Behavior change communication approaches
- Continued sensitization and advocacy of GESI
- Mainstreaming GESI responsiveness in school and community practices and activities

### **Barriers that hinder GESI and how to address them in and out of schools**

- a. Infrastructural barriers such as inaccessible school facilities
- b. Curriculum barriers such as deficient resources and learning materials for learners
- c. attitudinal barriers such as insensitivity and discrimination by teachers, parents, peers and the society at large
- d. Pedagogical barriers such as teachers not having necessary knowledge and skills on GESI responsive pedagogy.
- e. Public misconception of what GESI seeks to achieve
- f. Large class size especially in the basic schools

- g. Unavailability of relevant teaching and learning resources
- h. Lack of expert support for the regular class teacher

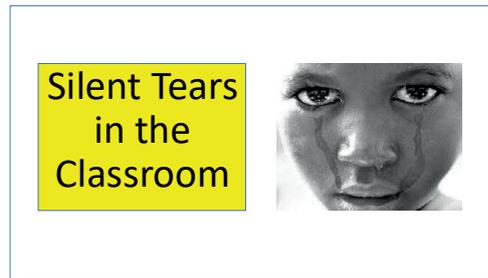
**Ways the barriers can be addressed**

These can be addressed through:

- GESI responsive infrastructure
- GESI responsive teacher education curriculum (include basic braille and sign language)
- Continuous advocacy
- Training teachers on GESI responsive pedagogies
- Train and deploy more special education teachers to the regular schools
- Provide relevant TLR for use in schools

## Appendix 2 – GESI Observation Tool

### A. Silent Tears



- Tears always fill me, but I can't pour them because no one understands me
- My parents can't even understand me because my teachers make them believe I am good for nothing
- I thought my parents will tell them that I repair all the electrical appliances in the house without any training
- Who will hear me now because myself and many who are like me are being destroyed?
- Who will help tell them that even though we might not be able to get the certificate we have great talents?
- Who will help tell teachers that they should not force their dreams on us but guide us nurture our God given talents?
- Who will hear our cry? I am one of the voices of the many silent voices in the class
- I wish I can be bold to tell my teachers that I must be understood and not compared
- My maths teachers say I'm good for nothing because I'm not good in calculations
- My science teachers say am useless because I can't express myself fluently in the white man's language
- They seem to have forgotten that I'm the one who led the school soccer team to win that trophy
- I am the same person who plays the drums to the admiration of all
- Sometimes when I ask why they consider what I do as important, they tell me WAEC doesn't ask those in examinations
- My teachers always say I don't do well even though they teach me well but how can I tell them that the teaching method doesn't favour me even though it favours the majority
- How can I tell my teacher that I just need motivation not condemnation?

### B. Integrating GESI in Teaching and Learning

**Introduction:** The need to deliberately address gender and inclusion in the classroom arises because, overtime, the classroom and school environment have been made to overlook gender biases and continue to promote exclusion. GESI responsive pedagogy involve teaching and learning processes that pay attention to the specific learning needs of girls, boys and members of marginalised groups.

**Overview of GESI Responsive Pedagogy:**

Classroom practices often reinforce traditional gender roles, gender and inclusion stereotypes that may disadvantage some learners resulting in poor quality learning outcomes. There is therefore the need to challenge these practices to ensure equal learning

outcomes of all learners. This requires teachers to be GESI responsive in lesson planning, selection and use of teaching and learning materials, methodologies, learning activities, classroom setup and interaction, management of gender stereotypes in the classroom and feedback and assessment.

### **Components of a GESI Responsive Lesson**

#### **1. GESI Responsive Lesson Planning**

- Lesson planning involves a wide range of decisions:
- Content
- Choice of learning materials to use
- Methodologies
- Learning activities
- Language use
- Classroom setup
- Classroom interaction
- Assessment of the learning/ learner
- Fair knowledge of the background of learners to inform all the above
- For a lesson plan to take into account gender and inclusion considerations, the lesson planning process should involve the following:

#### **2. Choice of Learning Materials**

- Review the TLMs and identify if the material contains stereotypes?
- If so, what strategies can be used to address such stereotypes?
- If faced with a history textbook that portrays only heroes, it will be vital to draw up a list of "sheroes" (female heroes).
- If a chemistry textbook portrays only male scientists as inventors or abled bodied scientists, include discussing female scientists and scientists with disability.
- Carefully review the language used in the TLMs for gender responsiveness and inclusion.

#### **3. Teaching Methodologies**

- Select teaching methodologies that will ensure equal participation of girls, boys and students with special needs.
- Ensure that dominant individuals do not sideline less assertive ones. – Employ differentiated teaching approaches suitable for all learners.
- Protect students with disability from abuse or bully by other students.

#### **4. Learning Activities**

The lesson plan should make allowance for all students to participate in the learning activity.

- When doing science experiments, ensure that girls, boys and students with disability have a chance to use the equipment and chemicals.
- There should also be equal participation in such activities as making presentations.
- When assigning projects, ensure that both females and males are given leadership positions and roles.
- Take into account how the learning materials will be distributed equally to both girls and boys, especially in case of shortage or limited supply.

## 5. Classroom Setup and Interaction

**The lesson plan should consider the classroom setup.**

- Consider how to arrange the classroom and interact with the students to promote equal participation of all students.
- Plan in advance to ask substantive questions to all students.
- Where do you stand or sit during the lesson? Ensure that your position or posture does not exclude or intimidate students.

**Management of other gender and inclusive constraints to learning inside the classroom**

- In the planning process, make provision for time to deal with gender-specific problems, if any, such as girls who have missed class due to menstruation, household chores or family responsibilities. Or support to students with learning disabilities.
- Watch for indications of bullying, sexual harassment, adolescent hormonal upheavals, the impact of HIV/ AIDS, Pregnancy, Peer pressure, among others.

### **Feedback and Assessment**

Make time for adequate feedback from girls, boys and students with special needs to ensure that lesson is well understood. Ensure that assessment methods do not disadvantage any marginalised group or individual in the class.

### **GESI Responsive Teaching & Learning Resources (TLRs)**

TLRs are fundamental to the pedagogical process and are critical for shaping young minds. However, TLRs and textbooks often communicate traditional and limited gender roles. They also reinforce stereotypes about disabilities. Usually, the message in some materials is that women and girls are weak and passive and that persons with disabilities are a burden or are cursed. Consequently, male and female students continue to follow the status quo and reinforce negative stereotypes about women. In effect, men are challenged to take up leadership roles, whereas women continue to occupy the backbench. To ensure equality and inclusion, TLRs and other learning resources must empower both female and male students and students with disabilities.

Choose materials that depict persons of minority groups in a positive light. For example, a child with a physical disability playing with other children; an albino student in class with other children, a female statistician etc

GESI Responsive TLRs:

### **GESI Responsive Language Use in the Classroom**

**Language** is a tool of communication. Inappropriate language use can transmit negative messages and inhibit learning. A boy or girl whose teacher constantly tells them "you are stupid" may believe this to be true. A teacher's constant use of harsh, abusive and threatening language may instil fear in the students. Language can also reinforce gender differences and inequalities

- Gender biases are expressed through language that reveals the belief that girls cannot perform as well as boys or that boys should not allow themselves to be outperformed by girls academically – or in any other way.
- Teachers sometimes discourage girls from taking science-based subjects or courses by telling them that such subjects are for boys or are too difficult for girls.
- When a girl is assertive, she is told to stop behaving like a boy, and when a boy cries, he is cautioned to stop acting like a girl.

- Spoken language is only part of the equation. Much offensive communication is not verbal. – An indifferent shrug of the shoulders or rolling of the eyes suggests that the student is too foolish or bothersome to warrant attention.
- Other gestures and body language, such as winking, touching, brushing, grabbing, and other moves, may be overtly sexual.
- It is also difficult for the victim to take steps to stop the abuse because there is often no tangible evidence. Most sexual harassment occurs and escalates in this way.

### **GESI Responsive Classroom Setup**

How the classroom is arranged can contribute positively or negatively to teaching and learning processes. This includes the layout of the furniture in the classroom or laboratory, the quality of chairs and desks, and the overall physical infrastructure of the school. The height of shelves in the classroom can contribute to an interactive classroom setup or exclude student of a certain height.

To ensure GESI responsiveness in the way a classroom is set up, the following needs to be considered:

- A classroom setup that mixes girls and boys and also considers disabilities – Classroom setup that enhances the participation of all students
- Arrangement of the desks that allow students with disabilities to be comfortable – Appropriate shelf heights in the libraries and laboratories.
- Stools in laboratories that are appropriate in size and shape thus enabling effective participation of both girls and boys.
- Fixtures and visual aids on the walls that send gender-responsive messages
- Appropriate size, shape and weight of desks and chairs.

**GESI Responsive Classroom Interaction:** Students are boys and girls with gender-specific needs. Especially as they mature, their gender roles can have an increasing impact on classroom interactions. An existing disability introduces different classroom dynamics. Sexual experimentation, sexual harassment, male domination, female passivity, and bullying come into play in the classroom. The following are essential steps towards building good classroom rapport:

Look for characteristics such as shyness, arrogance, distraction and low confidence.

- Take into account that some students are slow learners, some are gifted, and most are better in some areas than others.
- It is important to go beyond academic ability. Bear in mind that some learners come from disadvantaged situations.
- Orphans, displaced, the very poor or may have hidden disabilities
- Watch out for the gender-specific needs of students: girls who are having problems because they are going through their menstrual cycle.

## Appendix 3 – GESI Observation Tool

Name of Tutor		Sex				
Course Title		Level				
Subject/Topic						
Gender and Inclusion Responsive competency	Some Strategies and Actions to observe:	Not achieved	Partially achieved	Half achieved	Fully achieved	
		0	1	2	3	
<b>1. The Tutor uses Gender and Inclusion responsive pedagogy in class</b>  (aim for a score of 19-21)	<b>The Tutor:</b> 1) gives equal chance to females and males to ask and answer questions in class (and provides extra encouragement to girls who may lack confidence)					
	2) uses participatory methods such as group work, debates and role play; and ensures equal participation of females & males (giving extra encouragement where needed)					
	3) pays attention to the composition of females and males during group work and assigns females leadership roles					
	4) ensures that females have equal access to teaching and learning resources (TLMs, books, desks, etc.), particularly if males are more assertive and take resources first					
	5) is patient with females and males who may be shy or afraid to speak					
	6) checks to see if both females and males understand the lesson					
	7) provides constructive/positive verbal feedback to both females and males in class					
	<b>Total score</b>					
<b>2. The Tutor uses Gender and Inclusion responsive language and interaction</b>	<b>The Tutor:</b> 1) does not use negative expressions or language that demeans, excludes, or gives females the impression that are not as intelligent or do not need to perform as well as males					
	2) does not use harsh/threatening language or actions that instil fear in both females and males					

(aim for a score of 19-21)	3) does not say things that reinforce false assumptions about females and males (e.g., girls are bad at maths/science, girls are always shy, boys are the first to answer)				
	4) does not use body language that excludes girls or shows preferential treatment to boys (such as speaking mostly to boys or turning your back to girls)				
	5) sets ground rules that prohibit teasing or bullying, particularly from males towards females				
	6) builds students' (especially females') skills for self-confidence, speaking out and leadership				
	7) knows the difference between 'being friendly' with girls and being flirtatious. Jokes and conversations <u>should not</u> have sexual undertones, and Tutors should not use terms like 'girlfriend' or 'sweetie'.				
<b>Total score</b>					
<b>3. The Tutor uses Gender and Inclusion responsive TLMs</b>  (aim for a score of 10-12)	<b>The Tutor:</b> 1) reviews all textbooks, pictures, posters, and materials before using them to see if they reinforce traditional Gender and Inclusion roles (e.g., women cooking/cleaning, men in professional roles)				
	2) identifies traditional Gender and Inclusion roles that appear in books/materials and makes a point to alert students to these portrayals when using the materials in class				
	3) discusses with students how portrayals of traditional Gender and Inclusion roles limit what female students think they can do and achieve				
	4) ensures that books, materials, or equipment are equally distributed amongst females/males				
<b>Total score</b>					
<b>4. The Tutor challenges</b>	<b>The Tutor:</b> 1) empowers males to be critical of and challenge traditional views of masculinity				

<b>traditional Gender and Inclusion roles</b>  (aim for a score of 10-12)	(e.g. men should be 'powerful', should not be 'weak', should never cook/clean)				
	2) empowers females to be critical of and challenge traditional views of femininity (e.g., women should be dependent on men, should only be mothers/carers, should not be assertive)				
	3) actively uses examples (e.g., exercises, activities, role play, pictures) that <i>challenge or reverse</i> traditional Gender and Inclusion roles (such as having men cook)				
	4) supports and encourages females to achieve in maths and science and aspire to professions traditionally taken by men (such as engineering, police, medicine)				
<b>Total score</b>					
<b>5. The Tutor uses Gender and Inclusion responsive planning</b>  (aim for a score of 15-18)	<b>The Tutor:</b>				
	1) plans classroom seating so that males and females are mixed, and so that pupils who need more support sit at the front				
	2) reviews student attendance every 2-3 months (particularly for females) - if there are problems with attendance, the Tutor should follow up with the head Tutor and parents				
	3) reviews student assessments every 2-3 months - if there are large gaps between females and males, the Tutor should develop strategies to close the gaps				
	4) plans to use teaching strategies that ensure equal participation of both females and males				
	5) reviews TLMs for traditional Gender and Inclusion roles and ensures that materials are distributed and used equally between female and males				
6) plans to use exercises/activities that do not reinforce traditional Gender and Inclusion roles and in some cases, actively <i>challenges or reverses</i> traditional Gender and Inclusion roles					
<b>Total score</b>					
<b>Overall score</b>					

<b>Class size</b>	
<b>Number of Females</b>	
<b>Number of Males</b>	

**Name of Peer Tutor (Observer)**

.....

**Signature**

.....

**Thank you for completing this observation tool.**

# ICT AS CROSS-CUTTING TOOL FOR TEACHING AND LEARNING

## Purpose

This manual is prepared to

1. help tutors plan and teach learner-centred lessons using ICT
2. provide tutors access to and use of ICT tools for assessment *of, for and as* learning
3. introduce tutors to the use ICT for the development of 21<sup>st</sup> century skills
4. guide tutor in their use of ICT software and hardware for teaching and learning.

## Preamble

Teachers in the 21st century are facing new challenges because of the expanding possibilities of ICT integration in every aspect of the school curriculum. Research works have shown the potential of Tutor Professional Development (TPD) that is tailored to local conditions as well as global components and takes advantage of mutual support among tutors, as well as modelling of effective practices.

Welliver's Instructional Transformation Model sets goals and expectations for all teachers at whatever stage they are starting at. The five hierarchical stages start with familiarization, then utilization, integration, reorientation, and finally revolution.

1. **Familiarization:** is when teachers become aware of technology and its potential uses.
2. **Utilization:** teachers use technology, but minor problems will cause them to discontinue its use.
3. **Integration:** technology becomes essential for the educational process and teachers are constantly thinking of new ways to use technology in their classrooms
4. **Reorientation:** teachers begin to rethink the educational goals of the classroom with the use of technology.
5. **Revolution:** is the evolving classroom that becomes completely integrated with technology in all subject areas. Technology becomes an invisible tool that is seamlessly woven into the teaching and learning process.

ICTs have the capabilities to bring several benefits to teachers and students such as shared learning resources, shared learning spaces and promotion of cooperative and collaborative learning they also provide a base for autonomous learning. ICTs have enabled us to communicate one to one, one to many and many to many through communication channels and networking. They provide a means to organize institutions differently and lead to new ways of working together with virtualization. With implementation and integration of ICTs in teacher education, the society has been transformed into a knowledge society. During the International Conference on ICT and Post-2015 Education, the 2015 Qingdao Declaration stated the importance of the professional development of teachers to effectively integrate ICT into their work.

*Successful integration of ICT into teaching and learning requires rethinking the role of teachers and reforming their preparation and professional development. It calls for promoting a culture of quality in all its aspects: staff support, student support, curricula design, course design, course delivery, strategic planning, and development. We will therefore ensure that teacher-training institutions are equipped and prepared to use ICT adequately to expand the benefits of*

*training and professional development programmes to all teachers, and to act as the vanguard for technology-supported innovations in education. We also commit to providing teachers with system-wide support for the pedagogical use of ICT, to incentivize teacher innovation, and to develop networks and platforms that allow teachers to share experiences and approaches that may be of use to peers and other stakeholders. (UNESCO, 2015)*

Mishra and Koehler (2006) expressed the fact that technology has changed the way we teach (pedagogy), what we teach (content), and the context in which teaching/learning happens. Thus, to say that technology gives us new opportunities to connect with the content and use new pedagogical strategies to pass the content to our students.

In the field of teacher education ICT-based applications and their integration with content, method and pedagogy are potential catalysts for meaningful learning of students.

Professionals associated with teacher education institutions should equip them to design their educational system and prepare teachers for the future of the society (Singh, 2014).

With implementation of ICTs and its effective integration with teaching and learning process, the approaches to learning and teaching has changed to reflect global competencies of the 21<sup>st</sup> century teacher. The basic approaches are as follows:

- Learner Centric: Explore the best in every student.
- Learning Centric: Learner learn by designing and preparing meaningful learning experience with the help of a teacher.
- Promoting Inquisitiveness: Develop questioning ability in learner. Teacher encourages learner to ask questions. It leads to critical thinking.
- Innovation Centric: Teacher promotes innovation, creativity, and team spirit in learner.
- Develop cooperative and collaborative learning environment: Learning occurs through discussion, interaction and debate called learning for development.

Teacher is expected to perform the role of a facilitator and moderator with different responsibilities in different situations in a technology-mediated learning environment, called networked society. There is the need for specialized training and orientation of teachers to enable the teacher to develop the classroom, school and society with new skills and competencies. For this reason, the expectation of the National Teacher Curriculum Framework (NTECF) is that student teachers should be equipped a set of competencies and skills so that they can in turn inculcate in their learners the competencies and skills. The set of skills and competencies provided by the NTECF, subsequently captured by the Pre-Tertiary Education Curriculum Framework are:

- critical thinking and problem-solving skills,
- creative and innovative skills,
- life-long learning/personal Life skills,
- collaborative/social skills,
- communication skills,
- literacy and numeracy skills,
- leadership skills,
- entrepreneurial skills,
- digital literacy/information, communication & technology (ICT) skills and,
- civic literacy.

ICT can be used to leverage the development of these skills and competencies if teachers are intentional about the ICTs use for skills and competencies development.

Learning Outcomes	Indicators
1. Demonstrate knowledge and understanding of the basic ICT tools and their impact on 21 <sup>st</sup> century skills	1.1 Mention and describe some basic ICT tools and how to use them, including: Computers, and other hardware, software. 1.2 21 <sup>st</sup> century skills and ICT tools that can be used to integrate them in lessons. 1.3 Analyse and evaluate the changes brought about by the introduction of ICT.
2. Demonstrate use of basic ICT tools for planning lessons	2.1 Perform basic lesson planning tasks using an ICT tool, e.g., using Google calendar. 2.2 Create, edit, format, save and print documents using various productivity tools. 2.3 Use the internet to search for information
3. Demonstrate use of basic ICT tools for teaching, learning and assessment	3.1 Perform basic teaching tasks using an ICT tool, e.g., using PowerPoint, Google classroom, zoom, Google meet. 3.2 Perform basic lesson assessment tasks using an ICT tool, e.g., using Google forms. 3.3 Use the internet to search for activities for teaching, learning and assessment
4. Demonstrate use of basic ICT tools for research	4.1 Perform basic research tasks using an ICT tool, e.g., using survey monkey, Google forms. 4.2 Use the internet for literature search including theoretical and conceptual frameworks

## ICT TOOLS

ICT tools – both software and hardware – can be used for planning, teaching, learning, assessment, data management and for research, with some of them able to perform multiple functions. Some of these tools are stated below with a brief note on their usage.

### ICT TOOLS FOR PLANNING LESSONS

**AnswerGarden** is a tool for online brainstorming and collaboration.

**BrainPOP** Lets you use pre-recorded videos on countless topics to shape your lesson plan, then use quizzes to see what stuck.

**Buncee** Helps students and teachers visualize, communicate, and engage with classroom concepts.

**Class Dojo:** This is a fun tool to gamify the classroom. Students make their own avatars, gain and lose points based on classroom behavior, discussion approaches, and other soft skills agreed upon by the teacher and the class. Teachers can also use Class Dojo to take attendance and create graphs that breakdown the information for teachers. Not only will this tool encourage students to uphold class values, but it will also provide key metrics to help teachers adjust their teaching tactics accordingly.

**Coggle** A mind-mapping tool designed to help you understand student thinking.

**Conceptboard** is a software that facilitates team collaboration in a visual format, similar to mind mapping but using visual and text inputs.

**Dotstorming** A whiteboard app that allows digital sticky notes to be posted and voted on. This tool is best for generating class discussion and brainstorming on different topics and questions.

**Flipgrid:** Flipgrid is the video discussion tool from Microsoft that opens-up the classroom. It is designed to allow students to speak to the group but without the same fear that might constrict responses in a real-world situation. Students can re-record responses, removing the pressure of answering in class, on the spot. Of course, it's also a great tool for use when learning remotely.

**Google Calendar:** With Google Calendar, you can quickly schedule meetings and events and get reminders about upcoming activities, so you always know what's next. Calendar is designed for teams, so it's easy to share your schedule with others — students and colleagues for example — and create multiple calendars that you and your team can use together.

**Google Classroom:** Google Classroom is a free web service, developed by Google for schools, that aims to simplify creating, distributing, and grading assignments in a paperless way. The primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students. Google Classroom combines *Google Drive* for assignment creation, storage and distribution, Google Docs (equivalent of Microsoft Word), Sheets (equivalent of Microsoft Excel) and Slides (equivalent of Microsoft PowerPoint) for writing/word processing, calculation and graphing, and presentation respectively Gmail for communication, and Google Calendar for scheduling.

**Google Meet:** Google Meet is a google enterprise-grade video conferencing app. Now, anyone with a Google Account can create an online meeting with up to 100 participants and meet for up to 60 minutes per meeting.

**PowerPoint Presentation:** PowerPoint is a presentation programme developed by Microsoft. PowerPoint is often used to create business presentations but can also be used for educational or informal purposes. The presentations are comprised of slides, which may contain text, images, and other media, such as audio clips and movies. A good PowerPoint presentation enables teachers to make their lessons engaging, interactive and real.

**Voov Meeting:** VooV Meeting allows attendees to join meetings quickly on mobile phones, PCs, tablets, and webpages for a seamless conferencing experience across platforms

**Zoom:** Zoom Cloud Meetings is a proprietary video teleconferencing software program developed by Zoom Video Communications. It enables you to virtually interact with your students when in-person meetings are not possible, and it has been hugely successful for teaching and learning.

(Zoom, VooV Meeting and Google Meet are good for collaborative lesson planning with colleagues).

## ICT TOOLS/APPS FOR TEACHING

**AudioNote** A combination of a voice recorder and notepad, it captures both audio and notes for student collaboration.

**Edmodo** is a free learning management platform that merges classroom content, safe communication, and assessment with social media savvy. Students and parents can get quick answers to questions as well as stay current on class assignments and happenings via the student planner and discussion threads. It provides a simple way for teachers to create and manage an online classroom community as well as enables students to connect and work with their classmates and teachers anywhere and anytime. The Ghana Library Authority as subscribed to this platform and available for teachers, students, and their parents to use.

**Edpuzzle** helps you use video (your own, or one from Khan Academy, YouTube, and more) to track student understanding.

**GeoGebra for Teaching and Learning Math.** It is a free digital tool for class activities, graphing, geometry, collaborative whiteboard and more

**Google Classroom:** Google Classroom is a free web service, developed by Google for schools, that aims to simplify creating, distributing, and grading assignments in a paperless way. The primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students. Google Classroom combines Google Drive for assignment creation and distribution, Google Docs, Sheets and Slides for writing, Gmail for communication, and Google Calendar for scheduling.

**Jamboard** is a digital interactive whiteboard in a collaborative whiteboard space with options to draw, add pictures, shapes, sticky notes, and text boxes. Jamboard is one smart display. Quickly pull in images from a Google search, save work to the cloud automatically, use the easy-to-read handwriting and shape recognition tool, and draw with a stylus but erase with your finger – just like a whiteboard.

**Kasahorow** is a vocabulary-enriching platform that helps to learn the English language and modernize African languages like a child. Kasahorow Keyboards for Android lets you type in Akan, English, Gbe, Ga-Dangme, Hausa and Yoruba conveniently. It is used as a normal keyboard by simply installing and selecting when you want to type an African language on any Android devices you have.

**Kahoot** is an online game-based learning platform. It allows teachers, organizations, and parents to set up fun web-based learning for others. Kahoot can be used as a fun trivia activity to do with students or teachers to have a series of fun questions at the same time learn.

**Math Kids** is a free learning game designed to teach young children numbers and mathematics. It features several mini games that toddlers and pre-K kids will love to play, and

the more they do the better their math skills will become. Adding Quiz will put your child's math and addition skills to the test.

Other mathematics applications are, inMaths, Geomaths

**Moodle:** Moodle stands for Modular Object-Oriented Dynamic Learning Environment. Moodle was designed to provide educators, administrators, and learners with an open, robust, secure, and free platform to create and deliver personalised learning environments. Moodle is a user-friendly Learning Management System (LMS) that supports learning and training needs for a wide range of institutions and organisations across the globe.

**Photomath** is a mobile application that utilizes a smartphone's camera to scan and recognize mathematical equations; the app then displays step-by-step explanations onscreen. It is available for free on both Android and iOS. It uses the camera on a user's smartphone or tablet to scan and recognize a math problem. Once the problem is recognized, the app will display solving steps, sometimes in a variety of methods or multiple approaches, to explain the scanned problem step-by-step and teach users the correct process.

**Piazza** Lets you upload lectures, assignments, and homework; pose and respond to student questions; and poll students about class content. This tool is better suited for older students as it mimics post-secondary class instructional formats.

**QuickVoice Recorder** Allows you to record classes, discussions, or audio for projects. Sync your recordings to your computer easily for use in presentations.

**StudyGe:** This is a geography for children. This learning game will help you to remember location of countries, their capitals and flags. You can train your memory and memorize information about countries. This offline platform will allow students to improve your knowledge of geography. Other geography platforms are LearnGeography, AP Human Geography

**Telegram** is a mobile application that allows users to communicate with them using mobile gadget and computer. Telegram can be used for teaching and learning for the following reasons:

Multiple platforms: smartphones (Operating system, Android), PC, Laptop, iPad, Tab, and Web., Compatible file format, large files transfer, Grouping facilities, better storage capacity and management, better memory system and management, better security with the encryption. Telegram can be used for teaching and learning in the following ways: announcement, forum i.e., whole class discussion, Quizzes, open ended question, group project report, listening practice, pronunciation practice, speaking practice, writing practice, problem solving, Content/materials sharing, PowerPoint presentation.

**Vocaroo** Is a quick and easy way to record and share voice messages over the interwebs. Vocaroo creates audio recordings without the need for additional software. The recordings are easy to be embedded into PowerPoint presentations and websites.

**Whiteboard** is an instant formative assessment tool for your classroom, providing you with live feedback and immediate overview over your students. Engage your whole class, include every student and let everybody answer - including the shy students or students who normally wouldn't bother to answer.

## DIGITAL ASSESSMENT TOOLS FOR TEACHERS

**Classmarker:** Classmarker is an online testing software that offers a free version that is very complete providing teachers with interesting possibilities for formative and summative evaluations. A professional web-based Quiz maker is an easy-to-use, customizable online testing solution for business, training & educational assessments with Tests & Quizzes graded instantly, saving hours of paperwork

**Edulastic** Allows you to make standards-aligned assessments and get instant feedback.

**Gimkit** Lets you write real-time quizzes.

**Google Forms:** Google Forms is a tool that allows collecting information from users through a personalized survey or exam. Google Forms is a free tool from Google that allows you to do the following: Create forms, surveys, quizzes, and such. Share the forms with others. Allow others to complete the forms online.

**Kahoot** - game-based assessment tool.

**Mentimeter** - pre-built education templates.

**Naiku** Lets you write quizzes students can answer using their mobile devices.

**Poll Everywhere** - used by 300,000 teachers.

**Quiz Bot** - Create a quiz with several multiple-choice questions and test on telegram

**Socrative** - quizzes and questions with real-time grading.

**World Geography** – Quiz Games for Geography

**World Map Quiz** – quizzes and questions for Geography

## ICT TOOLS/APPS FOR RESEARCH

**Academia.edu:** is a platform for academics to share research papers. The company's mission is to accelerate the world's research.

**ai.google:** Google periodically releases data of interest to researchers in a wide range of computer science disciplines.

**Biohunter:** A Portal with literature search, data statistics, reading, sorting, storing, field expert identification and journal finder.

**Code Ocean** is a Cloud-based computational platform which provides a way to share, discover and run published code.

**DataBank:** Is an analysis and visualization tool that contains collections of time series data on a variety of topics.

**Datacatalogs.org** offers open government data from US, EU, Canada, CKAN, and more.

**Data.gov:** The USA government's official data portal offers access to tens of thousands of data sets

**Data.gov.in:** An Open Government Data (OGD) Platform India - is a platform for supporting Open Data initiative of Government of India. The portal is intended to be used by Government of India Ministries/ Departments their organizations to publish datasets, documents, services, tools and applications collected by them for public use. It intends to increase transparency in the functioning of Government and also open avenues for many more innovative uses of Government Data to give different perspective.

**Data.gov.uk:** The British government's official data portal offers access to tens of thousands of data sets on topics such as crime, education, transportation, and health

**DeepDyve:** provides simple and affordable access to millions of articles across thousands of peer-reviewed journals. Content from the world's leading publishers including Reed Elsevier, Springer, Wiley-Blackwell, and more.

**GitHub:** An Online software project hosting using the Git revision control system.  
**Open Science Framework:** This gathers a network of research documents, a version control system, and a collaboration software.

**Google Finance:** it provides stock market data and give updates in real time.

**Google Scholar** is a freely accessible web search engine that indexes the full text or metadata of scholarly literature across an array of publishing formats and disciplines.

**Microsoft Academic Search:** Find information about academic papers, authors, conferences, journals, and organizations from multiple sources.

**Peer Evaluation:** is an Open repository for data, papers, media coupled with an open review and discussion platform.

**QuillBot** is a paraphrasing and summarizing tool that helps millions of students and professionals cut their writing time by more than half using state-of-the-art AI to rewrite any sentence, paragraph, or article.

**ResearchGate** is the professional network for scientists and researchers. Over 15 million members from all over the world use it to share, discover, and discuss research.

**Sciencescape:** An Innovation in the exploration of papers and authors.

**SlideShare:** Community for sharing presentations and other professional content

**SSRN:** Is Multi-disciplinary online repository of scholarly research and related materials in social sciences.

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## Tutor PD Session on ICT Integration & 21<sup>st</sup> Century Skills

Age Levels/s: EG,UP,JHS

Name of Subject/s: ICT Integration

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>Introduction to the session</b></p>	<p>1.1 Self-introduction: Ask tutors to introduce themselves.</p> <p>1.2 Ask tutors to share any successes and issues they had when using ICT tools in a previous semester <i>employing talk for learning strategies.</i></p> <p>1.3 Asks tutors who are conversant with and have utilized ICT tool(s) in Lessons in the previous semester(s) to share their practices and how these ICT tools and its integration has impacted on their teaching in any of the semester(s). It is important to identify the topic as well as the ICT tool(s) used in the discussion.</p>	<p>1.1 Kindly introduce yourself to the group.</p> <p>1.2 Tutors share any successes and issues they had when using ICT tools in a previous semester <i>employing talk for learning strategies.</i></p> <p>1.3 Tutors who are conversant with and have utilized ICT tool(s) in Lessons in the previous semester(s) to share their practices and how these ICT tools and its integration has impacted on their teaching in any of the semester(s). It is important to identify the topic as well as the ICT tool(s) used in the discussion.</p>	<p><b>20 mins</b></p>

	<p>1.4. Ask tutors to read the purpose, the learning outcomes and learning indicators of the manual and use the think-pair-share approach to share their views about how the manual can help them to integrate ICT into their lessons.</p> <p><b>Distinctive aspects</b> Lead tutors to discuss ICT tool(s) they are familiar with and any unique qualities of these ICT tool(s) as learning tools that they can identify.</p> <p>Note: The following are the distinctive aspects that this manual has considered: Reading literacy, writing literacy, numeracy, information literacy, ICT [information and communications technologies] digital literacy, communication and can be described broadly as learning domains.</p> <p>1.5 Ask tutors to pair with a colleague and share their views about the ICT tools that they have used in their everyday life and how the unique qualities of these tool(s) can be incorporated into their classroom teaching.</p>	<p>1.4. Read the purpose, the learning outcomes and learning indicators of the manual and use the think-pair-share approach to share your views about how the manual can help you to integrate ICT into their lessons.</p> <p><b>Distinctive aspects</b> Tutors to discuss ICT tool(s) they are familiar with and any unique qualities of these ICT tool(s) as learning tools that they can identify.</p> <p>Note: The following are the distinctive aspects that this manual has considered: Reading literacy, writing literacy, numeracy, information literacy, ICT [information and communications technologies] digital literacy, communication and can be described broadly as learning domains.</p> <p>1.5 Pair with a colleague and share your views about the ICT tools that you have used in your everyday life and how the unique qualities of these tool(s) can be incorporated into your classroom teaching.</p>	
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	<p>1.6 In groups ask tutors to write on a flip chart using Concept Cartoons:</p> <p>a. ICT tool (s) tutors are familiar with. e.g., email, mobile phones, computers, slides, animation, zoom, telegram, etc.</p> <p>b. ICT tool(s) tutors use and integrate in their teaching at the College of Education</p> <p>1.7 Let tutors present their findings via <i>radio reporting</i>.</p>	<p>1.6 In groups, write on a flip chart using Concept Cartoons:</p> <p>a. The distinctive features of ICT tool(s) you are familiar with</p> <p>b. CT tools you use and integrate in your teaching at the College of Education.</p> <p>1.7 Present your findings via <i>radio reporting</i>.</p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1. Using the think, pair, share approach, assign tutors sub-topics of integrating ICT into teaching and learning (<i>equity, health and safety issues relating to the use of ICT tools</i>) to tutors to discuss and write points on a flip chart for presentation. Allow time for each presentation and whole group discussion.</p> <p>2.2 Ask tutors to work in pairs and examine the misconceptions in teaching and learning with ICT tool(s) and share ideas on how to address them.</p> <p>E.g. computers can do everything a teacher can do</p>	<p><b>Concept Development</b></p> <p>2.1. Discuss the sub-topic, assigned to you with your partner and share your views with the larger group</p> <p>2.2 In pairs, discuss misconceptions in teaching and learning with ICT tool (s) and share possible ways of addressing them.</p> <p>E.g. computers can do everything a teacher can do</p>	<b>25 mins</b>

	2.3 Ask tutors to outline possible challenging areas in teaching with ICT tool(s) taking into consideration GESI (e. g. identifying areas in the curriculum where stereotypes are reinforced and addressing these).	2.3 Outline possible challenging areas in teaching with ICT tool(s) taking into consideration GESI (e. g. identifying areas in the curriculum where stereotypes are reinforced and addressing these).	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous</li> </ul>	<p><b>Teaching and learning activities:</b></p> <p>3.1. Discuss with tutors, general ICT tools for teaching and learning</p> <p>Desktop and laptops computers, Projector, Digital cameras, Printer, Photocopier, tablets, Popplet, Pen Drive, Ipods, Ipads, Webboards, Scanners, Microphones, interactive white board, DVDs and CDs Flash discs, video Games</p> <p><b>E.g.,</b>  <b>Geomaths</b>  <b>Maths kits</b>  <b>Microsoft maths solver</b>  <b>Photomaths</b>  <b>Scratch</b>  <b>kasahorow</b></p> <ul style="list-style-type: none"> <li>• <b>Software</b></li> <li>• <b><u>Office Professional</u></b> – E.g. XP.</li> <li>• <b>Good photo software</b> e.g. <u>Microsoft Digital Photo Suite</u></li> <li>• <b>"Photostory 2</b> -- comes with service pack 2.</li> </ul>	<p><b>Teaching and learning activities:</b></p> <p>3.1 Discuss general ICT tools for teaching and learning</p> <p>Desktop and laptops computers, Projector, Digital cameras, Printer, Photocopier, tablets, Popplet, Pen Drive, Ipods, Ipads, Webboards, Scanners, Microphones, interactive white board, DVDs and CDs Flash discs, video Games</p> <p><b>E.g.,</b>  <b>Geomaths</b>  <b>Maths kits</b>  <b>Microsoft maths solver</b>  <b>Photomaths</b>  <b>Scratch</b>  <b>kasahorow</b></p> <ul style="list-style-type: none"> <li>• <b>Software</b></li> <li>• <b><u>Office Professional</u></b> – E.g. XP.</li> <li>• <b>Good photo software</b> e.g. <u>Microsoft Digital Photo Suite</u></li> <li>• <b>"Photostory 2</b> -- comes with service pack 2.</li> </ul>	<b>40 mins</b>

<p>assessment to support student teacher learning</p> <ul style="list-style-type: none"> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> </ul> </li> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Inspiration</b></li> <li>• <b><u>Smart Notebook</u></b> <ul style="list-style-type: none"> <li>○ <b><u>United Streaming</u></b> subscription</li> </ul> </li> <li>• <b>Hardware</b></li> <li>• <b>Flat Screen monitor</b> Good quality printer preferably a laser black and color photo. E.g. HP</li> <li>• <b>CD/DVD RW drive(s)</b></li> <li>• <b><u>USB ports</u></b></li> <li>• <b>Scanner</b> – e.g. Epson brand</li> <li>• <b>Digital camera</b> – e.g. of Canon</li> <li>• <b>External storage</b> - an <u>external hard drive</u> to back up data</li> <li>• <b>Portable storage</b> - USB flash drive, 2 GB minimum.</li> <li>• <b><u>Palm</u></b> or other <b>handheld device</b> to keep schedules, dates, reminders, and store pictures and music. E.g. Tungsten Palm</li> <li>• <b><u>Smart board</u></b> or <b><u>Smart Airliner</u></b>, with projection unit for classroom use.</li> <li>• <b>CPS (<u>classroom performance system</u>)</b> also for classroom use.</li> </ul> <p><b>Teaching 21st Century Skills with ICT</b></p> <p><b>Collaborative Problem Solving</b></p>	<ul style="list-style-type: none"> <li>• <b>Inspiration</b></li> <li>• <b><u>Smart Notebook</u></b> <ul style="list-style-type: none"> <li>○ <b><u>United Streaming</u></b> subscription -</li> </ul> </li> <li>• <b>Hardware</b></li> <li>• <b>Flat Screen monitor</b> Good quality printer preferably a laser black and color photo. E.g. HP</li> <li>• <b>CD/DVD RW drive(s)</b></li> <li>• <b><u>USB ports</u></b></li> <li>• <b>Scanner</b> – e.g. Epson brand</li> <li>• <b>Digital camera</b> – e.g. of Canon</li> <li>• <b>External storage</b> - an <u>external hard drive</u> to back up data</li> <li>• <b>Portable storage</b> - USB flash drive, 2 GB minimum.</li> <li>• <b><u>Palm</u></b> or other <b>handheld device</b> to keep schedules, dates, reminders, and store pictures and music. E.g. Tungsten Palm</li> <li>• <b><u>Smart board</u></b> or <b><u>Smart Airliner</u></b>, with projection unit for classroom use.</li> <li>• <b>CPS (<u>classroom performance system</u>)</b> also for classroom use.</li> </ul> <p><b>Teaching 21st Century Skills with ICT</b></p> <p><b>Collaborative Problem Solving</b></p>	
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	<p><a href="https://youtu.be/cnkKHL_dyGE">https://youtu.be/cnkKHL_dyGE</a></p> <p><b>Creativity</b>  <a href="https://www.youtube.com/watch?v=qV7DiTFdtvw">https://www.youtube.com/watch?v=qV7DiTFdtvw</a></p> <p><b>Hands-On Learning</b>  <a href="https://youtu.be/vYUNfJ9IKzs">https://youtu.be/vYUNfJ9IKzs</a></p> <p><b>Effective Written and Oral Communication</b>  <a href="https://www.youtube.com/watch?v=D5hMN_XkPQA">https://www.youtube.com/watch?v=D5hMN_XkPQA</a></p> <p><b>Ethical Decision Making</b>  <a href="https://youtu.be/lwk8dGFn1tY">https://youtu.be/lwk8dGFn1tY</a></p> <p><b>Information and Media Literacy</b>  <a href="https://youtu.be/bjYhmTC3lrc">https://youtu.be/bjYhmTC3lrc</a></p> <p><b>Critical Thinking</b>  <a href="https://youtu.be/y7iMEH7jGfK">https://youtu.be/y7iMEH7jGfK</a>  <a href="https://youtu.be/88DoGrqEuJk">https://youtu.be/88DoGrqEuJk</a></p> <p><b>Leadership</b>  <a href="https://youtu.be/NF10F6bX_g">https://youtu.be/NF10F6bX_g</a></p> <p><b>Personal Responsibility and Initiative</b>  <a href="https://youtu.be/nRE131ErclM">https://youtu.be/nRE131ErclM</a></p> <p>3.2 Lead tutors to discuss Special Education Needs (SEN) ICT tools for teaching, learning and assessment.</p> <p><b>E.g.,</b> Teachers dealing with the SEN will require special ICT tools like; text magnifier, head wands,</p>	<p><a href="https://youtu.be/cnkKHL_dyGE">https://youtu.be/cnkKHL_dyGE</a></p> <p><b>Creativity</b>  <a href="https://www.youtube.com/watch?v=qV7DiTFdtvw">https://www.youtube.com/watch?v=qV7DiTFdtvw</a></p> <p><b>Hands-On Learning</b>  <a href="https://youtu.be/vYUNfJ9IKzs">https://youtu.be/vYUNfJ9IKzs</a></p> <p><b>Effective Written and Oral Communication</b>  <a href="https://www.youtube.com/watch?v=D5hMN_XkPQA">https://www.youtube.com/watch?v=D5hMN_XkPQA</a></p> <p><b>Ethical Decision Making</b>  <a href="https://youtu.be/lwk8dGFn1tY">https://youtu.be/lwk8dGFn1tY</a></p> <p><b>Information and Media Literacy</b>  <a href="https://youtu.be/bjYhmTC3lrc">https://youtu.be/bjYhmTC3lrc</a></p> <p><b>Critical Thinking</b>  <a href="https://youtu.be/y7iMEH7jGfK">https://youtu.be/y7iMEH7jGfK</a>  <a href="https://youtu.be/88DoGrqEuJk">https://youtu.be/88DoGrqEuJk</a></p> <p><b>Leadership</b>  <a href="https://youtu.be/NF10F6bX_g">https://youtu.be/NF10F6bX_g</a></p> <p><b>Personal Responsibility and Initiative</b>  <a href="https://youtu.be/nRE131ErclM">https://youtu.be/nRE131ErclM</a></p> <p>3.2 Discuss Special Education Needs (SEN) ICT tools for teaching, learning and assessment.</p> <p><b>E.g.,</b> Teachers dealing with the SEN will require special ICT tools like; text magnifier, head wands,</p>
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	<p>keyboard for cerebral Palsy, braille, typing aids, large prints, audio books.</p> <p>3.3 Lead tutors to discuss some useful Education Technology Resources for teaching, learning and assessment.  <b>E.g., <u>Office 365 vs G-Suite for Education</u></b>  <u>Google Meet for Online Teaching</u>  <u>Google Classroom for Online</u>  <u>Assignment submissions</u>  <u>Plagiarism checking</u>  <u>Softwares</u>  <u>Tools for Checking Grammar errors Online</u>  Assessment tools include: grading rubrics, Canvas Assignments, plagiarism detection, self-assessment, and peer assessment, surveys, and classroom polling. Quiz bot  Digital Assessment Tools for Teachers:  Socrative - quizzes and questions with real-time grading.  Classmarker- quizzes and questions with real-time grading  Google Forms - easy to use.  Mentimeter - pre-built education templates.  Poll Everywhere - used by 300,000 teachers.  Kahoot - game-based assessment tool.</p> <ul style="list-style-type: none"> <li>• Further links to videos for further application of ICT tools in the teaching and learning process</li> </ul>	<p>keyboard for cerebral Palsy, braille, typing aids, large prints, audio books.</p> <p>3.3 Discuss some useful Education Technology Resources for teaching, learning and assessment.  <b>E.g. <u>Office 365 vs G-Suite for Education</u></b>  <u>Google Meet for Online Teaching</u>  <u>Google Classroom for Online</u>  <u>Assignment submissions</u>  <u>Plagiarism checking</u>  <u>Softwares. Tools for Checking Grammar errors Online</u>  Assessment tools include: grading rubrics, Canvas Assignments, plagiarism detection, self-assessment, and peer assessment, surveys, and classroom polling. Quiz bot  Digital Assessment Tools for Teachers:  Socrative - quizzes and questions with real-time grading.  Classmarker- quizzes and questions with real-time grading  Google Forms - easy to use.  Mentimeter - pre-built education templates.  Poll Everywhere - used by 300,000 teachers.  Kahoot - game-based assessment tool.</p> <ul style="list-style-type: none"> <li>• Further links to videos for further application of ICT tools in the teaching and learning process</li> </ul>	
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	<p><a href="https://www.youtube.com/watch?v=k8nMh71ky4Y">https://www.youtube.com/watch?v=k8nMh71ky4Y</a></p> <p>3.4 Ask tutors to suggest ICT-mediated teaching, learning and assessment activities in their respective subjects taking into account GESI. E.g., Making reasonable adjustments using ICT for physically challenged learners. E.g. Both male and female learners playing leading roles in ICT-based group tasks.</p> <p>3.5 Let tutors present their findings to the larger group</p>	<p><a href="https://www.youtube.com/watch?v=k8nMh71ky4Y">https://www.youtube.com/watch?v=k8nMh71ky4Y</a></p> <p>3.4 Suggest ICT-mediated teaching, learning and assessment activities in your respective subjects. Taking into account GESI. E.g., Making reasonable adjustments for physically challenged learners.</p> <p>Both male and female learners playing leading roles in a group task.</p> <p>3.5 Present your findings to the larger group</p>	
<ul style="list-style-type: none"> <li>• <b>Evaluation and review of session:</b></li> <li>• Tutors need to identify critical friends to observe lessons and report at next session</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p>4.1 Ask tutors to identify any outstanding issues relating to the lesson/s for clarification</p> <p>4.2 Ask tutors to identify a critical friend who will observe their first lesson and give them feedback on how they integrated ICT in the lesson.</p>	<p>4.1 Identifying any outstanding issues relating to the lesson/s for clarification.</p> <p>4.2 Identify a critical friend who will observe your first lesson and give you feedback on how you integrated ICT in the lesson.</p>	<p><b>5 mins</b></p>

**ICT**

**Age Levels/s: JHS**

**Name of Subject/s: ICT**  
**Multimedia Authoring in Education**  
*Topic: Courseware I*

**Educational Instructional Technology**  
*Topic: Current Technological trends shaping education I*

### Tutor PD Session for Lesson 1 in the Course Manual

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1(a) Introduction to the semester – in session one</b></p> <ul style="list-style-type: none"> <li>• Introduction to the purpose of the specialisms: EG, UP and JHS</li> <li>• 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 levels/s.</li> <li>• Introduction to the course manual/s</li> </ul>	<p><b>Introduction</b></p> <p>1.1. Discuss with tutors the purpose of the specialism. E.g. This PD manual is designed as an aid for tutors who are preparing to teach students offering the JHS specialism in ICT using the course Manual. It also aims to help the tutor refine, redefine, and reshape their perspectives and views of technology as they relate to the society, teaching, learning, and training.</p>	<p><b>Introduction</b></p> <p>1.1 Tutors discuss with lead the purpose of the specialism</p>	<p><b>20 mins</b></p>

<ul style="list-style-type: none"> <li>• Overview of course learning outcomes</li> <li>• Introduction to the two continuous assessment components to be undertaken in each subject during the semester (See Course Assessment Components at a Glance Appendix 2) NB in subjects where there are no assessment components in the course manuals examples will need to be provided for SL/HoD.</li> </ul> <p><b>b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the</li> </ul>	<p>1.2 Introduce and discuss with tutors the courses to be covered for the semester. i.e., Multimedia Authoring in Education as well as Educational and Instructional Technologies for JHS.</p> <p>1.3 Ask tutors to read the introduction, lesson description and the purpose of the lesson in the course manual and indicate how they are related to student teachers' relevant previous knowledge</p> <p>1.4 Ask Tutors to write the Course learning outcomes (CLO) for lesson 1 and their corresponding Course Learning indicators (CLI) for discussion. E.g.,</p> <p><b>a. Educational Instructional Technology:</b></p> <p>i. Demonstrate knowledge of ethical, cultural, and societal issues related to technology.</p> <p>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1, 3, &amp; 4.</p> <p><b>b. Multimedia Authoring in Education:</b></p> <p>i. Demonstrate knowledge, understanding and use of Design Metaphor/ Authoring paradigms.</p>	<p>1.2 Discuss together the courses to be covered for the semester i.e., Multimedia Authoring in Education as well as Educational and Instructional Technologies for JHS.</p> <p>1.3 Read the introduction, lesson description and the purpose of the lesson in the course manual and indicate how they are related to student teacher' relevant previous knowledge</p> <p>1.4 Write the Course learning outcomes (CLO) for lesson 1 and their corresponding Course Learning indicators (CLI) for discussion. E.g.,</p> <p><b>a. Educational Instructional Technology:</b></p> <p>i. Demonstrate knowledge of ethical, cultural, and societal issues related to technology.</p> <p>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1, 3, &amp; 4.</p> <p><b>b. Multimedia Authoring in Education:</b></p> <p>i. Demonstrate knowledge, understanding and use of Design Metaphor/ Authoring paradigms.</p>	
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<p>lesson up to and including learning outcomes and indicators</p> <ul style="list-style-type: none"> <li>• Overview of content and identification of any distinctive aspects of the lesson/s.</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p><b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1, 3, &amp; 4.</b></p> <p>1.5 Discuss with tutors the two assessment components for the lesson. (Subject portfolio and subject project).</p> <p><b>E.g.,1</b> <b>Create e-portfolios to contain:</b></p> <p>a. Reflective notes of their observation during school visit relating to the use and application of educational and instructional technologies.</p> <p>b. Presentation of Video Analysis, individual and group project to synthesize and evaluate student teachers' ability to use self-help features to learn use of hardware and software.</p> <p>NOTE: Refer to appendix 2: (Course Assessment Components briefly) for further details.</p> <p>1.6 In groups of two, ask tutors to review the previous lessons learnt in Year 1 semester 2 PD sessions (Introduction to Information and Communication Technology) and how they applied it in their teaching E.g., Media elements (audio, video etc).</p>	<p><b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1, 3, &amp; 4</b></p> <p>1.5 The two assessment components are subject portfolio and subject project.</p> <p><b>E.g.,1</b> <b>Create e-portfolios to contain:</b></p> <p>a. Reflective notes of their observation during school visit relating to the use and application of educational and instructional technologies.</p> <p>b. Presentation of Video Analysis, individual and group project to synthesize and evaluate student teachers' ability to use self-help features to learn use of hardware and software.</p> <p>NOTE: Refer to appendix 2: (Course Assessment Components briefly) for further details.</p> <p>1.6 In groups of two, review the previous lessons learnt in Year 1 semester 2 PD sessions (Introduction to Information and Communication Technology) and how you applied it in your teaching E.g., Media elements (audio, video etc).</p>	
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	<p>1.7 Ask tutors to:</p> <p>i. Individually read the introductory sections of lesson 1 up to the learning outcomes and their corresponding indicators.</p> <p>E.g. Lesson description, possible barriers in the lesson, mode of delivery.</p> <p>ii. Allow for group discussion.</p> <p><b>Distinctive Aspect</b></p> <p>1.8 Ask tutors to:</p> <p>i. Write on a sticky pad the distinctive aspects of the lesson in EdTech and Multimedia Authoring in education for group discussion i.e.,</p> <p><b>EdTech</b></p> <p>a. Current Technological Trends shaping education I</p> <p>b. Flipped / blended learning</p> <p>c. Remote learning</p> <p><b>Multimedia Authoring in Education</b></p> <p>a. Courseware I</p> <p>b. Tutorials</p> <p>c. Drill and Practice</p> <p>ii. Identify areas that need further clarification on the lesson. E.g. The difference between old (classroom face to face) and new paradigm (e-learning).</p>	<p>1.7</p> <p>i. Individually read the introductory sections of lesson 1 up to the learning outcomes and their corresponding indicators.</p> <p>E.g., Lesson description, possible barriers in the lesson, mode of delivery.</p> <p>ii Discuss the introductory sections in groups.</p> <p><b>Distinctive Aspect</b></p> <p>1.8</p> <p>i. Write on a sticky pad the distinctive aspects of the lesson in EdTech and Multimedia Authoring in education for group discussion. i.e.,</p> <p><b>EdTech</b></p> <p>a. Current Technological Trends shaping education I</p> <p>b. Flipped / blended learning</p> <p>c. Remote learning</p> <p><b>Multimedia Authoring in Education</b></p> <p>a. Courseware I</p> <p>b. Tutorials</p> <p>c. Drill and Practice</p> <p>ii. Identify areas that need further clarification on the lesson. E.g. The difference between old (classroom face to face) and new paradigm (e-learning).</p>	
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	iii. 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.	iii. 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.	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1 Using interactive talk for learning (e.g., concept cartoon) lead tutors to engage in a discussion on the concepts of:</p> <p><b>EdTech:</b> Remote Learning</p> <p><b>Multimedia Authoring:</b> Tutorials.</p> <p>2.2 Ask tutors to write two (2) possible barriers in learning the concept above for discussion. (e.g., Access to appropriate software).</p>	<p><b>Concept Development</b></p> <p>2.1 Using interactive talk for learning (e.g., concept cartoon) discuss the concepts of:</p> <p><b>EdTech:</b> Remote Learning</p> <p><b>Multimedia Authoring:</b> Tutorials.</p> <p>2.2 Write two (2) possible barriers in learning the concept above for discussion. (E.g., Access to appropriate software).</p>	<b>15 mins</b>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask tutors to individually read through the teaching and learning activities outlined in lesson 1 of the course manual for group discussion.</p> <p><b>EdTech:</b> Describe how technology impacts learning.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Individually read through the teaching and learning activities outlined in lesson 1 of the course manual for group discussion.</p> <p><b>EdTech:</b> Describe how technology impacts learning.</p>	<b>40 mins</b>

<p>opportunities for making links to the Basic School Curriculum</p> <ul style="list-style-type: none"> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on</li> </ul> </li> </ul>	<p><b>Multimedia:</b></p> <p>a. Watch a video on Courseware - <a href="https://youtu.be/TfN5YZwEUUg">https://youtu.be/TfN5YZwEUUg</a></p> <p>b. Ask tutors to discuss their findings with the larger group</p> <p>3.2 Ask tutors to note down areas that require clarification and/or contribution. <i>E.g., differences between tutorial and drill &amp; practice.</i></p> <p>3.3 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 lesson 1. <i>E.g., Key Boarding Skills.</i></p> <p>3.4 Using think-pair-share, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>E.g., Equal representation of males and females and mix ability grouping as appropriate.</i></p> <p>3.5 Ask tutors to read and discuss the assessment activities in the manual(s) and identify areas in lesson 1 that can be used for</p>	<p><b>Multimedia:</b></p> <p>a. Watch a video on Courseware - <a href="https://youtu.be/TfN5YZwEUUg">https://youtu.be/TfN5YZwEUUg</a></p> <p>b. Discuss your findings with the larger group</p> <p>3.2 Note areas that require clarification and/or contribution. <i>E.g., differences between tutorial and drill &amp; practice.</i></p> <p>3.3 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 lesson 1. <i>E.g., Key Boarding Skills.</i></p> <p>3.4 Using think-pair-share, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>E.g., Equal representation of males and females and mix ability grouping as appropriate.</i></p> <p>3.5 Read and discuss the assessment activities in the manual(s) and identify areas in lesson 1 that can be used for assessment</p>	
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<p>any power point presentations, TLM or other resources which need to be developed to support learning.</p> <ul style="list-style-type: none"> <li>Tutors should be expected to have a plan for the next lesson for student teachers.</li> </ul>	<p>assessment especially on NTEAP related activities.</p> <p>E.g. Group presentations on any two other courseware their differences and similarities.</p> <p>3.5.1 Let tutors focus be on <i>subject project and the subject portfolio of NTEAP document.</i></p> <p><b>Note:</b> Encourage tutors to instruct student teachers to work in groups (in mixed ability, &amp; and pay attention to the composition of females and males during the group work) to use either concept maps, simulations or multimedia presentations.</p> <p>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. <i>E.g., a YouTube Video</i></p> <p><i>Note!</i> <i>Make sure the resources are enough and appropriate to all learners (males, females and the SEN).</i></p> <p>3.7 Ask tutors to brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Courseware II. <b>EdTech:</b> Current Technological Trends Shaping Education II.</p>	<p>especially on NTEAP related activities.</p> <p>E.g. Group presentations on any two other courseware their differences and similarities.</p> <p>3.5.1 Focus on <i>subject project and the subject portfolio of NTEAP document.</i></p> <p>3.6 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school curriculum. <i>E.g., a YouTube Video</i></p> <p><i>Note!</i> <i>Make sure the resources are enough and appropriate to all learners (males, females and the SEN).</i></p> <p>3.7 Brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Courseware II. <b>EdTech:</b> Current Technological Trends Shaping Education II.</p>	
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<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors need to identify critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification.</li> </ul>	<p><b>Evaluation and review of session</b></p> <p>4.1 Ask tutors identify a critical friend to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Individually, let tutors identify any outstanding issues relating to the lesson for clarification.</p> <p>4.3 Encourage tutors to read lesson 2 from the PD manual and find relevant materials for the next session.</p>	<p><b>Evaluation and review of session</b></p> <p>4.1 Identify a critical friend to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Individually identify any outstanding issues relating to the lesson for clarification.</p> <p>4.3 Read lesson 2 from the PD manual and find relevant materials for the next session.</p>	<p><b>15 mins</b></p>
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**Age Levels/s: JHS**

**Name of Subject/s: ICT**

**Multimedia Authoring in Education**

*Topic: Courseware II*

**Educational Instructional Technology**

*Topic: Current Technological trends shaping education II*

## 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. <i>What the SL/HoDs will have to say during each stage of the session</i>	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
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• A critical friend to share findings for a short discussion and lessons learned</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of</li> </ul>	<p><b>Introduction to the session</b></p> <p>Start with an icebreaker</p> <p>1.1 Through questioning, ask tutors to review and reflect on the previous PD Session Lesson 1 and how useful it was on lessons taught. i.e.,</p> <p><b>EdTech:</b> Current Technological Trends shaping education I</p> <p><b>Multimedia:</b> a. Courseware I b. Tutorials c. Drill and Practice</p>	<p><b>Introduction to the session</b></p> <p>Start with an icebreaker</p> <p>1.1 Interactively, review and reflect on the previous PD Session Lesson 1 and how useful it was on lessons taught. i.e.,</p> <p><b>EdTech:</b> Current Technological Trends shaping education I</p> <p><b>Multimedia:</b> a. Courseware I b. Tutorials c. Drill and Practice</p>	<b>20 mins</b>

<p>any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.2 Invite tutors who observed Lesson 1 to share their experiences and the impacts on their facilitating in class.</p> <p>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.</p> <p>1.4 In pairs, ask tutors to identify the distinctive aspects of the lesson/s. i.e.</p> <p><b>EdTech</b> i. gamification ii. mind mapping</p> <p><b>Multimedia</b> i. Educational Problem Solving software. ii. Computer based simulations.</p> <p><i>Allow Room for Discussion.</i></p>	<p>1.2 Tutors who observed Lesson 1 to share their experiences and the impacts when facilitating in class.</p> <p>1.3 Read the introduction, lesson description and the purpose of lesson 1 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>1.4 Identify the distinctive aspects of the lesson/s. i.e.</p> <p><b>EdTech</b> i. gamification ii. mind mapping</p> <p><b>Multimedia</b> i. Educational Problem Solving software. ii. Computer based simulations.</p> <p><i>Discuss with the larger group your identification.</i></p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts</li> </ul>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to be in pairs, write at least three major concepts in the lesson and share with the whole group</p> <p>e.g., <b>EdTech-</b> i. digital tools ii. Big data and social media</p>	<p><b>Concept Development</b></p> <p>2.1 In pairs, write at least three major concepts in the lesson and share with the whole group</p> <p>e.g., <b>EdTech-</b> i. digital tools ii. Big data and social media</p>	<p><b>15 mins</b></p>

<p>or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD.</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors.</p>	<p><b>Multimedia-</b></p> <p>i. Problem solving software ii. serious games.</p> <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed above. <i>E.g., Social media is meant for entertainment purposes.</i></p> <p>2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified.</p> <p>E.g., using mobile phones to demonstrate how serious games are employed into teaching and learning process and show its impacts on learning.</p>	<p><b>Multimedia-</b></p> <p>i. Problem solving software ii. serious games.</p> <p>2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed above. <i>E.g., Social media is meant for entertainment purposes?</i></p> <p>2.3 Identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified.</p> <p>E.g., using mobile phones to demonstrate how serious games are employed into teaching and learning process and show its impacts on learning.</p>	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities.</li> <li>• Noting and addressing areas where tutors may require clarification.</li> <li>• Noting opportunities for making links to the Basic School Curriculum.</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask tutors to discuss the teaching and learning activities in the course manual.</p> <p><b>EdTech.</b></p> <p>Watch a 3-minute YouTube video on gamification in the classroom <a href="https://youtu.be/W72DnmS_zbr4">https://youtu.be/W72DnmS_zbr4</a></p> <p><b>Multimedia:</b></p> <p>Watch a 3 minutes YouTube video on Problem Solving Strategies for Education.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Discuss the teaching and learning activities in the course manuals.</p> <p><b>EdTech.</b></p> <p>Watch a 3-minute YouTube video on gamification in the classroom <a href="https://youtu.be/W72DnmS_zbr4">https://youtu.be/W72DnmS_zbr4</a></p> <p><b>Multimedia:</b></p> <p>Watch a 3 minutes YouTube video on Problem Solving Strategies for Education.</p>	<p><b>40 mins</b></p>

<ul style="list-style-type: none"> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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.</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> </ul> </li> <li>• Tutors should be expected to have a</li> </ul>	<p><a href="https://youtu.be/lhHhwbWEGXQb">https://youtu.be/lhHhwbWEGXQb</a></p> <p>3.1.1 Ask tutors to identify areas in the video they watched that require further clarifications.</p> <p>3.2 Engage tutors to discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 2.</p> <p><i>Note: ensure all instructions carried out are gender responsive. Making both gender active in the discussion.</i></p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>e.g., if mix ability grouping is appropriate. Assigning leadership roles to females.</i></p> <p>3.4 Ask tutors to identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p>	<p><a href="https://youtu.be/lhHhwbWEGXQb">https://youtu.be/lhHhwbWEGXQb</a></p> <p>3.1.1 Identify areas in the video you watched that require further clarifications.</p> <p>3.2 Discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 2.</p> <p><i>Note: ensure all instructions carried out are gender responsive. Both genders should be active in the discussion.</i></p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>e.g., if mix ability grouping is appropriate. Assigning leadership roles to females.</i></p> <p>3.4 Identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p>	
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<p>plan for the next lesson for student teachers</p>	<p>e.g., <i>The use of <b>OB STUDIO</b> to prepare and present lessons.</i></p> <p>3.5 Ask tutors to read the assessment activities in the course manuals and identify areas that require clarification.</p> <p><i>Note: Inform tutors to ask student teachers to develop specific presentations which are gender friendly using the <b>OB STUDIO</b>, to teach the concepts.</i></p> <p><b>Example from the courses are as follows:</b></p> <p><b>Multimedia-</b> "Computer based simulation is best used in school to support learning".</p> <p><b>EdTech-</b> "How social media and big data are used to support learning and discuss its merits and demerits of those technologies".</p> <p><b><i>These could be added to their subject portfolio/project.</i></b></p> <p>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., Games, Audio-visuals from YouTube.</p>	<p>e.g., <i>The use of <b>OB STUDIO</b> to prepare and present lessons.</i></p> <p>3.5 Read the assessment activities in the course manuals and identify areas that require clarification.</p> <p><i>Note: Ask student teachers to develop specific presentations which are gender friendly using the <b>OB STUDIO</b>, to teach the concepts.</i></p> <p><b>Example from the courses are as follows:</b></p> <p><b>Multimedia-</b> "Computer based simulation is best used in school to support learning".</p> <p><b>EdTech-</b> "How social media and big data are used to support learning and discuss its merits and demerits of those technologies".</p> <p><b><i>These could be added to their subject portfolio/project.</i></b></p> <p>3.6 Identify other inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. E.g., Games, Audio-visuals from YouTube.</p>	
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	3.7 Ensure that everybody has a concrete plan for teaching the next topic.	3.7 Ensure you have a concrete plan for teaching the next topic.	
<b>4. Evaluation and review of session:</b> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification.</li> </ul>	<b>Evaluation and review of session:</b> <p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Ask tutors to Individually identify any outstanding issues relating to the lesson 2 to be addressed.</p> <p>4.3 Ask tutors to read lesson 3 from the PD manual and find its relevant materials for the next session.</p>	<b>Evaluation and review of session:</b> <p>4.1 Remember to identify a critical friend who took part in the PD session to sit in your class during lesson and report on observation during next PD session.</p> <p>4.2 Individually, identify any outstanding issues relating to the lesson 2 to be addressed.</p> <p>4.3 Read lesson 3 from the PD manual and find its relevant materials for the next session.</p>	<b>15 mins</b>

Age Levels/s: JHS

Name of Subject/s: ICT

Multimedia Authoring in Education

Topic: Introduction to Authoring Systems I

Educational Instructional Technology

Topic: Classroom technology integration I

### 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. <i>What the SL/HoDs will have to say during each stage of the session</i>	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
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>Review prior learning</li> <li>A critical friend to share findings for a short discussion and lessons learned</li> <li>Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>Overview of content and identification of any distinctive</li> </ul>	<p><b>Start with an Ice Breaker:</b> “Someone explains how he/she uses photo grid App on a phone”.</p> <p>1.1 Ask tutors to review what they learnt in the previous PD session on lesson 2. i.e.,</p> <p><b>EdTech:</b></p> <ul style="list-style-type: none"> <li>Mind Mapping</li> <li>Digital Textbooks.</li> </ul> <p><b>Multimedia Authoring:</b></p> <ul style="list-style-type: none"> <li>Computer based Simulation</li> <li>Problem solving software.</li> </ul> <p>1.2 Invite the critical friend who observed lesson 2 to share his/her observation.</p>	<p><b>Start with an Ice Breaker:</b> “Someone explains how he/she uses photo grid App on a phone”.</p> <p>1.1 Review on what you learnt in the previous PD session on lesson 2 i.e.,</p> <p><b>EdTech:</b></p> <ul style="list-style-type: none"> <li>Mind Mapping</li> <li>Digital Textbooks.</li> </ul> <p><b>Multimedia Authoring:</b></p> <ul style="list-style-type: none"> <li>Computer based Simulation</li> <li>Problem solving software.</li> </ul> <p>1.2 The critical friend who observed lesson 2 share your observation.</p>	<p><b>20 mins</b></p>

<p>aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3 Ask tutors to read and discuss the introduction, lesson description, the lesson outcomes and the purpose of lesson 3 in the course manual. E.g., <b>Course learning outcome:</b> - Demonstrate knowledge and understanding of Authoring systems NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p>1.3.1 Indicate how they are related to student teachers' relevant previous knowledge.</p> <p><b>Distinctive Aspect</b></p> <p>1.4 In groups of at least two (taking into consideration GESI) ask tutors to brainstorm the distinctive aspects of Lesson 3.</p> <p><b>EdTech:</b> i. Integrating Technology</p> <p><b>Multimedia</b> i. Authoring Systems</p> <p>1.4.1 Ask tutors to use think- pair-share responses and identify any aspects that need clarification.</p>	<p>1.3 Read and discuss the introduction, lesson description, the lesson outcomes and the purpose of lesson 3 in the course manual. E.g., <b>Course learning outcome:</b> - Demonstrate knowledge and understanding of Authoring systems NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p>1.3.1 Indicate how they are related to student teachers' relevant previous knowledge.</p> <p><b>Distinctive Aspect</b></p> <p>1.4 In groups of at least two (taking into consideration GESI), brainstorm the distinctive aspects of the lesson 3.</p> <p><b>EdTech:</b> i. Integrating Technology</p> <p><b>Multimedia</b> i. Authoring Systems</p> <p>1.4.1 Think-pair-share responses and identify any aspects that need clarification.</p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential</li> </ul>	<p><b>Concept Development</b></p> <p>2.1 Interactively, ask tutors to identify at least two concepts in the two course manuals. i.e.,</p> <p><b>Multimedia:</b> Authoring Systems menus.</p>	<p><b>Concept Development</b></p> <p>2.1 Identify at least two concepts in the two course manuals. i.e.,</p> <p><b>Multimedia:</b> Authoring Systems menus.</p>	<p><b>15 mins</b></p>

<p>barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>EdTech:</b> Integrating Technology</p> <p>2.2 Ask tutors to watch a video on Integrating Technology – <b>EdTech</b> <a href="https://www.youtube.com/watch?v=d59eG1_Tt-Q">https://www.youtube.com/watch?v=d59eG1_Tt-Q</a></p> <p>2.3 Ask tutors to watch a GESI responsive video on: Authoring Systems - <b>Multimedia:</b> <a href="https://www.youtube.com/watch?v=RaGX5rlqC5s">https://www.youtube.com/watch?v=RaGX5rlqC5s</a></p> <p>2.2.1 Ask tutors to discuss the concepts.</p> <p>2.3 Ask tutors to write at least one possible challenge in teaching the concept above for discussion. E.g., Time consuming, poor internet connectivity.</p> <p>2.4 Ask tutors to identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified. E.g., using demonstration to identify the menus of Microsoft PowerPoint.</p>	<p><b>EdTech:</b> Integrating Technology</p> <p>2.2 <i>Watch a video on Integrating Technology – EdTech</i> <a href="https://www.youtube.com/watch?v=d59eG1_Tt-Q">https://www.youtube.com/watch?v=d59eG1_Tt-Q</a></p> <p>2.3 Watch a GESI responsive video on: Authoring Systems - <b>Multimedia:</b> <a href="https://www.youtube.com/watch?v=RaGX5rlqC5s">https://www.youtube.com/watch?v=RaGX5rlqC5s</a></p> <p>2.2.1 Discuss the concepts.</p> <p>2.3 Write at least one possible challenge / misconception in teaching the concept above for discussion. E.g., Time consuming, poor internet connectivity.</p> <p>2.4 Identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified. E.g., using demonstration to identify the menus of Microsoft PowerPoint.</p>	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask tutors to read the teaching and learning activities of Lesson 3 from the Course Manuals.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Read the teaching and learning activities of Lesson 3 from the Course Manuals.</p>	<p><b>40 mins</b></p>

<ul style="list-style-type: none"> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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.</li> </ul> </li> </ul>	<p><i>Refer tutors to lesson 3 in the course manual.</i></p> <p>3.1.1 Ask tutors to identify areas that require further clarifications.</p> <p>3.2 In groups, 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.</p> <p>3.3 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., E.g., MS PowerPoint, Adobe Captivate.</p> <p>3.4 In pairs, ask <i>tutors to identify any core and transferable skills, including <b>21<sup>st</sup> skills</b> and the use of information technology <b>tools</b> can be developed or applied in the lesson and demonstrate how they can help student teachers to support basic school learners to develop these skills through STS activities.</i></p> <p>E.g., Digital literacy of student teachers will be enhanced by giving them</p>	<p><i>Refer to lesson 3 in the course manual.</i></p> <p>3.1.1 Identify areas that require further clarifications.</p> <p>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.</p> <p>3.3 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, Adobe Captivate.</p> <p>3.4 In pairs, <i>identify any core and transferable skills, including <b>21<sup>st</sup> skills</b> and the use of information technology <b>tools</b> can be developed or applied in the lesson and demonstrate how they can help student teachers to support basic school learners to develop these skills through STS activities.</i></p> <p>E.g., Digital literacy of student teachers will be enhanced by giving them</p>	
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<p>Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> <li>▪ Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p>opportunities to surf and present information across units using various digital tools such as their mobile phones, laptops etc.</p> <p>3.5 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.</p> <p>E.g., identify user interface layout and menus of the Authoring Systems like MS PowerPoint.</p> <p>3.5.1 Let tutors focus be on <i>subject project and the subject portfolio of NTEAP document</i>.</p> <p><b>NB: Make sure that everybody has a real plan for teaching the given topics with emphasis on GESI issues (inclusivity).</b></p>	<p>opportunities to surf and present information across units using various digital tools such as their mobile phones, laptops etc.</p> <p>3.5 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.</p> <p>E.g., identify user interface layout and menus of the Authoring Systems like MS PowerPoint.</p> <p>3.5.1 Focus on the <i>subject project and the subject portfolio of NTEAP document</i>.</p> <p><b>NB: Make sure you have a real plan for teaching the given topics with emphasis on GESI issues (inclusivity).</b></p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Ask tutors identify a critical friend to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Ask tutors to identify any outstanding issues relating to the lesson for clarification.</p>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Identify a critical friend to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Identify any outstanding issues relating to the lesson for clarification.</p>	<p><b>15 mins</b></p>

	<p>E.g., Which authoring system should they use.</p> <p>4.3 Ask tutors to read Lesson 4 from the PD manual and find its relevant materials for the next session.</p>	<p>E.g., Which authoring system should you use.</p> <p>4.3 Read Lesson 4 from the PD manual and find its relevant materials for the next session.</p>	
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**Age Levels/s: JHS**

**Name of Subject/s: ICT**  
**Multimedia Authoring in Education**  
*Topic: Introduction to Authoring Systems II*

**Educational Instructional Technology**  
*Topic: Classroom technology integration II*

### Tutor PD Session for Lesson 4 in the Course Manual

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session.</b> <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session.</b> What PD Session participants (Tutors) will do during each stage of the session.</p>	<p><b>Time in session</b></p>
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning.</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators.</li> <li>• Overview of content and identification of any distinctive</li> </ul>	<p><b>Introduction</b></p> <p>1.1 Ask tutors to write one (1) thing they learnt in their last PD session on</p> <p><b>EdTech:</b> Classroom technology integration I</p> <p><b>Multimedia:</b> Introduction to Authoring Systems I.</p> <p>1.2 Ask tutors to share what they have written with the whole group.</p>	<p><b>Introduction</b></p> <p>1.1 Write one (1) thing you learnt in your last PD session on</p> <p><b>EdTech:</b> Classroom technology integration I</p> <p><b>Multimedia:</b> Introduction to Authoring Systems I.</p> <p>1.2 Share what you have written with the whole group.</p>	<p><b>20 mins</b></p>

<p>aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3 Invite the critical friend who observed lesson 3 to share his/her observation.</p> <p>1.4 Guide tutors to identify and read the main features of the lesson from the course manual i.e., lesson description, learning outcomes and their corresponding indicators individually. <i>E.g., Demonstrate knowledge and Practice responsible use of technology systems, information, and software. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</i></p> <p><b>Distinctive Aspect</b></p> <p>1.5 Ask tutors to brainstorm and write on sticky notes the distinctive aspect of the lessons.</p> <p><b>Multimedia</b> Evolution of Authoring systems.</p> <p><b>EdTech:</b> Responsible use of technology systems.</p> <p>1.5.1. Ask tutors to use think-pair-share to discuss their responses taking into consideration GESI issues i.e., asking females to take leading roles.</p> <p>1.5.2 Ask tutors to: i. Identify areas that need further</p>	<p>1.3 The critical friend who observed lesson 3 share your observation.</p> <p>1.4 Identify and read the main features of the lesson from the course manual i.e., lesson description, learning outcomes and their corresponding indicators individually. <i>E.g., Demonstrate knowledge and Practice responsible use of technology systems, information, and software. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</i></p> <p><b>Distinctive Aspect</b></p> <p>1.5 Brainstorm and write on sticky notes the distinctive aspect of the lessons.</p> <p><b>Multimedia</b> Evolution of Authoring systems.</p> <p><b>EdTech:</b> Responsible use of technology systems.</p> <p>1.5.1. Use think-pair-share to discuss your responses taking into consideration GESI issues i.e., asking females to take leading roles.</p> <p>1.5.2 i. Identify areas that need further</p>	
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	<p>clarification in the lesson.</p> <p>E.g.  <b>EdTech:</b>  <b>Classroom technology integration II</b> - Regulations regarding fair use.</p> <p><b>Multimedia:</b>  <b>Introduction to Authoring Systems II</b> - Authoring systems impact on learning.</p> <p>ii. 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.</p>	<p>clarification in the lesson.</p> <p>E.g.  <b>EdTech:</b>  <b>Classroom technology integration II</b>- Regulations regarding fair use.</p> <p><b>Multimedia:</b>  <b>Introduction to Authoring Systems II</b> - Authoring systems impact on learning.</p> <p>ii. 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.</p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to list and share the major concepts in the lesson.</p> <p>2.1.1 Using interactive talk for learning lead tutors to engage in a discussion on the major concepts. i.e.</p> <p><b>EdTech:</b>  Ways of Integrating Technology.</p> <p><b>Multimedia:</b> Evolutions of Authoring Systems.</p> <p>2.2 Ask tutors to write two (2) possible barriers in learning the concept above for discussion. (e.g., Lack of resources, inadequate knowledge and skills, institutional barriers.).</p>	<p><b>Concept Development</b></p> <p>2.1 List and share the major concepts in the lesson.</p> <p>2.1.1 Using interactive talk for learning engage in a discussion on the major concepts. i.e.</p> <p><b>EdTech:</b>  Ways of Integrating Technology.</p> <p><b>Multimedia:</b>  Evolutions of Authoring Systems.</p> <p>2.2 Write two (2) possible barriers in learning the concept above for discussion. (e.g., Lack of resources, inadequate knowledge and skills, institutional barriers.).</p>	<b>15 mins</b>

	<p>2.3 Ask tutors to identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., breaks class into small diverse groups to identify and discuss how Authoring Systems evolved and how this is relevant in the teaching and learning process.</p>	<p>2.3 Identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., breaks class into small diverse groups to identify and discuss how Authoring Systems evolved and how this is relevant in the teaching and learning process.</p>	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities.</li> <li>• Noting and addressing areas where tutors may require clarification.</li> <li>• Noting opportunities for making links to the Basic School Curriculum.</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills.</li> <li>• Reading, discussion, and identification of continuous assessment opportunities in</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask Tutors to individually read through the teaching and learning activities outlined in lesson 4 of the course manual(s) for group discussion. i.e.,</p> <p><b>EdTech:</b> ways to integrate technology in the classroom.</p> <p><b>Multimedia Authoring:</b> How Authoring systems evolved and how this is relevant in the teaching and learning process.</p> <p>a. Watch a video on ways to integrate technology in the classroom- <a href="https://www.youtube.com/watch?v=AgLNRKQR3AI">https://www.youtube.com/watch?v=AgLNRKQR3AI</a></p> <p>b. Ask tutors to discuss their findings with the larger group.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Individually read through the teaching and learning activities outlined in lesson 4 of the course manual(s) for group discussion. i.e.,</p> <p><b>EdTech:</b> ways to integrate technology in the classroom.</p> <p><b>Multimedia Authoring:</b> How Authoring systems evolved and how this is relevant in the teaching and learning process.</p> <p>a. Watch a video on ways to integrate technology in the classroom- <a href="https://www.youtube.com/watch?v=AgLNRKQR3AI">https://www.youtube.com/watch?v=AgLNRKQR3AI</a></p> <p>b. Discuss your findings with the larger group.</p>	<p><b>40 mins</b></p>

<p>the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning.</p> <ul style="list-style-type: none"> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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.</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning.</li> </ul> </li> <li>• Tutors should be expected to have a plan for the next lesson for student teachers.</li> </ul>	<p>3.1.1 Ask tutors to note areas that require clarification and/or contribution. E.g., Advantages of Authoring Systems.</p> <p>3.2 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 lesson 4. E.g., Designing a multimedia resource for use in the classroom.</p> <p>3.3 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.</p> <p>3.4 Ask tutors to read and discuss the assessment activities in the manual(s) and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g., Students to write a report on how teachers integrate technology in the classroom when they go for STS.</p>	<p>3.1.1 Note areas that require clarification and/or contribution. E.g., Advantages of Authoring Systems.</p> <p>3.2 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 lesson 4 . E.g., Designing a multimedia resource for use in the classroom.</p> <p>3.3 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.</p> <p>3.4 Read and discuss the assessment activities in the manual(s) and identify areas in the lesson that can be used for assessment especially on NTEAP related activities. E.g. Students to write a report on how teachers integrate technology in the classroom when they go for STS.</p>	
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	<p>3.4.1 Let tutors focus be on <i>subject project and the subject portfolio of NTEAP document.</i></p> <p>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. <i>E.g., a YouTube Video, Projector, Laptop (PC).</i></p> <p><i>NB: Use books which use gender sensitive language.</i></p> <p>3.6 Ask tutors to brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Authoring Interface.</p> <p><b>EdTech:</b> Classroom Technology Integration III.</p>	<p>3.4.1 Focus on the <i>subject project and the subject portfolio of NTEAP document.</i></p> <p>3.5 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom. <i>E.g., a YouTube Video, Projector, Laptop (PC).</i></p> <p><i>NB: Use books which use gender sensitive language.</i></p> <p>3.6 Brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Authoring Interface</p> <p><b>EdTech:</b> Classroom Technology Integration III.</p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors need to identify critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification.</li> </ul>	<p><b>Evaluation and review of session</b></p> <p>4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Individually, let tutors identify any outstanding issues relating to the lesson for clarification.</p>	<p><b>Evaluation and review of session</b></p> <p>4.1 Identify a critical friend to sit in your class during lesson and report on observation during next PD session.</p> <p>4.2 Individually identify any outstanding issues relating to the lesson for clarification.</p>	15 mins

	4.3 Encourage tutors to read lesson 5 from the PD manual and find relevant materials for the next session.	4.3 Read lesson 5 from the PD manual and find relevant materials for the next session.	
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**Age Levels/s: JHS**

**Name of Subject/s: ICT**

**Multimedia Authoring in Education**

*Topic: Authoring Interface*

**Educational Instructional Technology**

*Topic: Classroom technology integration III*

### Tutor PD Session for Lesson 5 in the Course Manual

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning.</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> </ul>	<p><b>Introduction</b></p> <p>1.1 Ask tutors to write one (1) thing they learnt in their last PD session on:</p> <p><b>EdTech:</b> Classroom technology integration II.</p> <p><b>Multimedia:</b> Evolution of Authoring systems.</p> <p>1.1.1 Ask tutors to share what they have written with the whole group.</p> <p>1.2 Invite the critical friend who observed lesson 4 to share his/her observation.</p>	<p><b>Introduction</b></p> <p>1.1 Write one (1) thing you learnt in the last PD session on:</p> <p><b>EdTech:</b> Classroom technology integration II.</p> <p><b>Multimedia:</b> Evolution to Authoring Systems.</p> <p>1.1.1 Share what you have written with the whole group.</p> <p>1.2. The critical friend who observed lesson 4 share your observation</p>	<p><b>20 mins</b></p>

<ul style="list-style-type: none"> <li>Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3 Guide tutors to identify and read the main features of the lesson from the course manual i.e., lesson description, learning outcomes and their corresponding indicators individually.</p> <p>E.g. <b>EdTech:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p><b>Multimedia:</b> Demonstrate knowledge and understanding in Authoring Interface and 1. Explain the nature of a multimedia user authoring system interface These strategies will respond to inclusivity and equity NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</p> <p><b>Distinctive Aspect</b></p> <p>1.4 Ask tutors to brainstorm and write down the distinctive aspect of the lessons.</p> <p><b>EdTech:</b> Responsible use of technology systems, information, and software in the classroom.</p>	<p>1.3 Identify and read the main features of the lesson from the course manual i.e., lesson description, learning outcomes and their corresponding indicators individually.</p> <p>E.g. <b>EdTech:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p><b>Multimedia:</b> Demonstrate knowledge and understanding in Authoring Interface and 1. Explain the nature of a multimedia user authoring system interface These strategies will respond to inclusivity and equity NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</p> <p><b>Distinctive Aspect</b></p> <p>1.4 Brainstorm and write down the distinctive aspect of the lessons.</p> <p><b>EdTech:</b> Responsible use of technology systems, information, and software in the classroom.</p>	
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	<p><b>Multimedia</b></p> <p>Authoring system interfaces</p> <p>1.4.1. Ask tutors to discuss their responses in pairs, taking into consideration GESI issues i.e., pairing a male tutor with a female tutor when applicable.</p> <p>1.4.2 Ask tutors to:</p> <p>i. Identify areas that need further clarification in the lesson. E.g.,</p> <p><b>EdTech:</b> Classroom technology integration II</p> <p><b>Multimedia:</b> metaphors</p> <p>ii. 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.</p>	<p><b>Multimedia</b></p> <p>Authoring system interfaces</p> <p>1.4.1. In pairs discuss your responses, taking into consideration GESI issues i.e., pairing a male tutor with a female tutor when applicable.</p> <p>1.4.2</p> <p>i. Identify areas that need further clarification in the lesson. E.g.,</p> <p><b>EdTech:</b> Classroom technology integration II</p> <p><b>Multimedia:</b> metaphors</p> <p>ii. 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.</p>	
<p><b>2 Concept Development (New learning likely to arise in lesson/s):</b> Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to write down and share the major concepts in the lesson.</p> <p><b>EdTech:</b> Lesson plan that integrates technology</p>	<p><b>Concept Development</b></p> <p>2.1 Write down and share the major concepts in the lesson.</p> <p><b>EdTech:</b> Lesson plan that integrates technology</p>	15 mins

<p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Multimedia:</b></p> <p>Display resolution, Data formats for captured data.</p> <p>2.1.1 Lead tutors to engage in a discussion on the major concepts they have written and shared.</p> <p>2.2 Ask tutors to write two (2) possible barriers in learning the concept above for discussion. (e.g., lack of technical support and money).</p> <p>2.3 Ask tutors to identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., Flipped instruction: asking students to complete the reading, preparation and introductory work at home. Then, during class time, the students do practice questions that they would traditionally do for homework.</p>	<p><b>Multimedia:</b></p> <p>Display resolution, Data formats for captured data.</p> <p>2.1.1 Discuss together the major concepts that you have written and shared</p> <p>2.2 Write two (2) possible barriers in learning the concept above for discussion. (e.g., lack of technical support and money).</p> <p>2.3 identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., Flipped instruction: asking students to complete the reading, preparation and introductory work at home. Then, during class time, the students do practice questions that they would traditionally do for homework</p>	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask Tutors to individually read through the teaching and learning activities outlined in lesson 5 of the course manual(s) for group discussion. I.e.,</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Individually read through the teaching and learning activities outlined in lesson 5 of the course manual(s) for group discussion. I.e.,</p>	

<ul style="list-style-type: none"> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> </ul> </li> <li>• Tutors should be expected to have a</li> </ul>	<p><b>EdTech:</b> Guide student teachers to use role play, group discussions, and presentations, to discuss the lesson plan.</p> <p><b>Multimedia Authoring:</b> Tutor shows a video to explain the design issues that will be encountered</p> <p>a. let tutors watch a video on design issues <a href="https://youtu.be/3dV8xGOgteQ">https://youtu.be/3dV8xGOgteQ</a></p> <p>3.1.1 <i>Ask tutors to discuss their findings with the larger group</i></p> <p>3.1.2 Ask Tutors to note areas that require clarification and/or contribution. E.g., Compression Algorithm.</p> <p>3.2 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., Selecting a technological tool and using it to plan a lesson</p> <p>3.3 Using think-pair- share, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p>	<p><b>EdTech:</b> Guide student teachers to use role play, group discussions, and presentations, to discuss the lesson plan.</p> <p><b>Multimedia Authoring:</b> Tutor shows a video to explain the design issues that will be encountered</p> <p>a. Watch a video on design issues <a href="https://youtu.be/3dV8xGOgteQ">https://youtu.be/3dV8xGOgteQ</a></p> <p>3.1.1 <i>Discuss your findings with the larger group</i></p> <p>3.1.2 Note areas that require clarification and/or contribution. E.g., Compression Algorithm.</p> <p>3.2 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., Selecting a technological tool and using it to plan a lesson</p> <p>3.3 Using think-pair-share, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p>	
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<p>plan for the next lesson for student teachers</p>	<p>E.g., Males and females taking turns in leading roles.</p> <p>3.4 Ask tutors to identify any other 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., <i>The use of smartphones to prepare and present lessons.</i></p> <p>3.5 Ask tutors to read and discuss the assessment activities in the manual(s) and identify areas in the lesson that can be used for assessment especially on NTEAP related activities.</p> <p>E.g. Explain the relation between authoring interface and Slide Show Metaphor, Book Metaphor, TimeLine Metaphor and Icon Metaphor</p> <p>3.5.1 Ask tutors to let focus be on <i>subject project and the subject portfolio of NTEAP document.</i></p> <p>3.6 Ask tutors to list the needed inclusive resources for the teaching and learning of</p>	<p>E.g., Males and females taking turns in leading roles.</p> <p>3.4 Ask tutors to identify any other 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., <i>The use of smartphones to prepare and present lessons.</i></p> <p>3.5 Read and discuss the assessment activities in the manual(s) and identify areas in the lesson that can be used for assessment especially on NTEAP related activities.</p> <p>E.g. Explain the relation between authoring interface and Slide Show Metaphor, Book Metaphor, TimeLine Metaphor and Icon Metaphor</p> <p>3.5.1 Focus on the <i>subject project and the subject portfolio of NTEAP document.</i></p> <p>3.6 List the needed inclusive resources for the teaching and learning of the concepts identified</p>	
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	<p>the concepts identified in both CoE and basic school classroom. E.g., a YouTube Video, Coursera, Khan Academy, Projector, Laptop (PC)</p> <p>3.7 Ask tutors to brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Special Features of the Authoring Systems I</p> <p><b>EdTech:</b> Classroom technology integration IV</p>	<p>in both CoE and basic school classroom. E.g., a YouTube Video, Coursera, Khan Academy, Projector, Laptop (PC)</p> <p>3.7 Brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Special Features of the Authoring Systems I</p> <p><b>EdTech:</b> Classroom technology integration IV</p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>Tutors need to identify critical friends to observe lessons and report at next session.</li> <li>Identifying and addressing any outstanding issues relating to the lesson/s for clarification.</li> </ul>	<p><b>Evaluation and review of session</b></p> <p>4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Individually, let tutors identify any outstanding issues relating to the lesson for clarification</p> <p>4.3 Encourage tutors to read lesson 6 from the PD manual and find relevant materials for the next session.</p>	<p><b>Evaluation and review of session</b></p> <p>4.1 Identify a critical friend to sit in your class during lesson and report on observation during next PD session.</p> <p>4.2 Individually identify any outstanding issues relating to the lesson for clarification</p> <p>4.3 Read lesson 6 from the PD manual and find relevant materials for the next session.</p>	<b>15 mins</b>

**Age Levels/s: JHS**

**Name of Subject/s: ICT**  
**Multimedia Authoring in Education**  
 Topic: *Special Features of the Authoring Systems I*

**Educational Instructional Technology**  
 Topic: *Classroom technology integration IV*

### 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. <i>What the SL/HoDs will have to say during each stage of the session</i>	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
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning.</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators.</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul>	<p><b>Introduction to the session</b></p> <p>1.1 Ask tutors to write one (1) thing they learnt in their last PD session on:</p> <p><b>EdTech:</b> Classroom technology integration III</p> <p><b>Multimedia:</b> Authoring Interface</p> <p>1.1.1 Ask tutors to share what they have written with the whole group.</p>	<p><b>Introduction to the session</b></p> <p>1.1 Write one (1) thing you learnt in your last PD session on:</p> <p><b>EdTech:</b> Classroom technology integration III</p> <p><b>Multimedia:</b> Authoring Interface</p> <p>1.1.1 Share what you have written with the whole group.</p>	<b>20 mins</b>

<p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.2 Invite the critical friend who observed lesson 4 to share his/her observation.</p> <p>1.3 Guide tutors to read and identify the main features of the lesson from the course manual i.e., lesson description, learning outcomes and their corresponding indicators individually. E.g.,</p> <p><b>EdTech:</b> Demonstrate knowledge and Practice responsible use of technology systems, information, and software. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</p> <p><b>Multimedia:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</p> <p><b>Distinctive Aspect</b> 1.4 Ask tutors to brainstorm and write down the distinctive aspect of the lessons.</p> <p><b>EdTech:</b> Responsible use of technology systems, information, and software in the classroom.</p>	<p>1.2. The critical friend who observed lesson 4 share your observation.</p> <p>1.3 Read and identify the main features of the lesson from the course manual i.e., lesson description, learning outcomes and their corresponding indicators individually. E.g.,</p> <p><b>EdTech:</b> Demonstrate knowledge and Practice responsible use of technology systems, information, and software. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</p> <p><b>Multimedia:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</p> <p><b>Distinctive Aspect</b> 1.4 Brainstorm and write down the distinctive aspect of the lessons.</p> <p><b>EdTech:</b> Responsible use of technology systems, information, and software in the classroom.</p>	
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	<p><b>Multimedia</b> Visual and object-oriented paradigm.</p> <p>1.4.1. Ask tutors to discuss their responses in pairs, taking into consideration GESI issues e.g., pairing a male tutor with a female tutor.</p> <p>1.4.2 Ask tutors to</p> <p>i. Identify areas that need further clarification in the lesson. E.g.</p> <p><b>EdTech:</b> Forms of Integration</p> <p><b>Multimedia:</b> Reusability / Object Oriented</p> <p>ii. Plan for their teaching as they go through the PD session. <i>E.g., using Tutor-led discussion, Self-prepared videos or from YouTube video to aid the lesson.</i></p>	<p><b>Multimedia</b> Visual and object-oriented paradigm.</p> <p>1.4.1. Discuss your responses in pairs, taking into consideration GESI issues e.g., pairing a male tutor with a female tutor.</p> <p>1.4.2</p> <p>i. Identify areas that need further clarification in the lesson. E.g.</p> <p><b>EdTech:</b> Forms of Integration</p> <p><b>Multimedia:</b> Reusability / Object Oriented</p> <p>ii. Plan for your teaching as you go through the PD session. <i>E.g., using Tutor-led discussion, Self-prepared videos or from YouTube video to aid the lesson.</i></p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being</li> </ul>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to write down and share the major concepts in the lesson. E.g.</p> <p><b>EdTech:</b> Classroom Technology Integration.</p> <p><b>Multimedia:</b> Visual and Object-Oriented Authoring Environment.</p>	<p><b>Concept Development</b></p> <p>2.1 Write down and share the major concepts in the lesson. E.g.</p> <p><b>EdTech:</b> Classroom Technology Integration.</p> <p><b>Multimedia:</b> Visual and Object-Oriented Authoring Environment.</p>	<p><b>15 mins</b></p>

<p>introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors.</p>	<p>2.1.1 Lead tutors to engage in a discussion on the major concepts.</p> <p>2.2 Ask tutors to write two (2) possible barriers in learning the concept above for discussion. (e.g., Some student teachers might not have had knowledge and understanding of the previous lesson.</p> <p>2.3 Ask tutors to identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., Project-based learning. This requires students to spend an extended period of time on a single project to gain in-depth knowledge about the task.</p>	<p>2.1.1 Discuss together the major concepts that you have written and shared.</p> <p>2.2 Write two (2) possible barriers in learning the concept above for discussion. (e.g., Some student teachers might not have had knowledge and understanding of the previous lesson.</p> <p>2.3 Identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., Project-based learning. This requires students to spend an extended period of time on a single project to gain in-depth knowledge about the task.</p>	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask Tutors to individually read through the teaching and learning activities outlined in lesson 6 of the course manual(s) for group discussion. i.e.,</p> <p><b>EdTech:</b> Demonstrates the use of technology in teaching for student teachers to observe.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Individually read through the teaching and learning activities outlined in lesson 6 of the course manual(s) for group discussion. i.e.,</p> <p><b>EdTech:</b> Guide student teachers to use role play, group discussions, and presentations, to discuss the lesson plan.</p>	<p><b>15 mins</b></p>

<p>the Basic School Curriculum</p> <ul style="list-style-type: none"> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on any power point presentations,</li> </ul> </li> </ul>	<p><b>Multimedia Authoring:</b> Use questions to explore the concepts of Visual and Object-Oriented paradigms and reusability helping the student teachers to have an understanding.</p> <p><b>Multimedia:</b></p> <p>a. let tutors watch a video on object oriented paradigms <a href="https://youtu.be/5SeWfV9SdNo">https://youtu.be/5SeWfV9SdNo</a></p> <p><b>EdTech</b> Visit the site below to read more on technology integration in the classroom <a href="http://www.open.edu/openlearncreate/course/view.php?id=2745">http://www.open.edu/openlearncreate/course/view.php?id=2745</a></p> <p>b. Ask tutors to discuss their findings with the larger group.</p> <p>3.1.1 Ask Tutors to note areas that require clarification and/or contribution. E.g., Reusability.</p> <p>3.2 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 the lesson.</p> <p>E.g., put student teachers in small groups to examine various issues both in a</p>	<p><b>Multimedia Authoring:</b> Use questions to explore the concepts of Visual and Object-Oriented paradigms and reusability helping the student teachers to have an understanding.</p> <p><b>Multimedia:</b></p> <p>a. Watch a video on object oriented paradigms <a href="https://youtu.be/5SeWfV9SdNo">https://youtu.be/5SeWfV9SdNo</a></p> <p><b>EdTech</b> Visit the site below to read more on technology integration in the classroom <a href="http://www.open.edu/openlearncreate/course/view.php?id=2745">http://www.open.edu/openlearncreate/course/view.php?id=2745</a></p> <p>b. Discuss your findings with the larger group</p> <p>3.1.1 Note areas that require clarification and/or contribution. E.g., Reusability.</p> <p>3.2. 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.</p> <p>E.g., put student teachers in small groups to examine various issues both in a</p>	
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<p>TLM or other resources which need to be developed to support learning</p> <ul style="list-style-type: none"> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p>face-to-face class and also online. Create a social media group for each group (e.g., Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device.</p> <p>3.3 Using think-pair- share, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p>E.g., Males and females taking turns in leading roles.</p> <p>3.4 Ask tutors to identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., Watching a YouTube video on why the need for Integrating technology into teaching.</p> <p>3.5 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.</p> <p>E.g., Student teacher creates a</p>	<p>face-to-face class and also online. Create a social media group for each group (e.g., Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device.</p> <p>3.3 Using think-pair-share, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p>E.g., Males and females taking turns in leading roles.</p> <p>3.4 Identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., Watching a YouTube video on why the need for Integrating technology into teaching.</p> <p>3.5 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.</p> <p>E.g., Student teacher creates a</p>	
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	<p>wiki on “the use of Visual and Object-Oriented Authoring Environment, Reusability /Oriented Icons.</p> <p>3.5.1 Ask tutors to focus be on <i>subject project and the subject portfolio of NTEAP document.</i></p> <p>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 classroom. E.g., a YouTube Video, Coursera, Khan Academy, Projector, Laptop (PC) Subject based application software.</p> <p>3.6 Ask tutors to brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Special Features of the Authoring Systems II</p> <p><b>EdTech:</b> Cognitive Science and Research-Based attributes of effective learning environments I</p>	<p>wiki on “the use of Visual and Object-Oriented Authoring Environment, Reusability/Oriented Icons.</p> <p>3.5.1 Focus on the <i>subject project and the subject portfolio of NTEAP document.</i></p> <p>3.6 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), Subject based application software.</p> <p>3.6 Brainstorm on a plan that will be appropriate for the next lesson.</p> <p><b>Multimedia:</b> Special Features of the Authoring Systems II</p> <p><b>EdTech:</b> Cognitive Science and Research-Based attributes of effective learning environments I</p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>Tutors need to identify critical friends to observe lessons and report at</li> </ul>	<p><b>Evaluation and review of session</b></p> <p>4.1 Ask tutors to identify a critical friend to sit in their class during lesson and report on observation during next PD session.</p>	<p><b>Evaluation and review of session</b></p> <p>4.1 Identify a critical friend to sit in your class during lesson and report on observation during next PD session.</p>	<p><b>15 mins</b></p>

<p>next session.</p> <ul style="list-style-type: none"> <li>Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p>4.2 Individually, let tutors identify any outstanding issues relating to the lesson for clarification</p> <p>4.3 Encourage tutors to read lesson 7 from the PD manual and find relevant materials for the next session.</p>	<p>4.2 Identify any outstanding issues relating to the lesson for clarification</p> <p>4.3 Read lesson 7 from the PD manual and find relevant materials for the next session.</p>	
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**Age Levels/s: JHS**

**Name of Subject/s: ICT**  
**Multimedia Authoring in Education**  
 Topic: *Special Features of the Authoring Systems II*

**Educational Instructional Technology**  
 Topic: *Cognitive Science and Research-Based attributes of effective learning environments I*

### Tutor PD Session for Lesson 7 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. <i>What the SL/HoDs will have to say during each stage of the session</i>	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
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• A critical friend to share findings for a short discussion and lessons learned</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> </ul>	<p><b>Introduction</b></p> <p>1.1 Ask tutors to reflect and discuss on the previous PD Session (Lesson 6) and its benefits on their lessons thought i.e.,</p> <p><b>EdTech:</b> Authoring Environment</p> <p><b>Multimedia:</b> Integrating technology into teaching.</p> <p>1.2 Invite the critical friend who observed Lesson 6</p>	<p><b>Introduction</b></p> <p>1.1 Discuss and reflect on the previous PD Session (Lesson 6) and its benefits on the lessons thought i.e.,</p> <p><b>EdTech:</b> Authoring Environment</p> <p><b>Multimedia:</b> Integrating technology into teaching.</p> <p>1.2 The critical friend who observed Lesson 6</p>	<b>20 mins</b>

<ul style="list-style-type: none"> <li>Overview of content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</li> </ul>	<p>to share his/her views and the impacts on their facilitating in class.</p> <p>1.3 Ask tutors to read the introduction, lesson description and the purpose of Lesson 7 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p><i>E.g., Demonstrate knowledge and Practice responsible use of technology systems, information, and software. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</i></p> <p><b>Distinctive Aspects</b></p> <p>1.4 Ask tutors to brainstorm the distinctive aspects of the lesson/s for group discussion i.e.</p> <p><b>EdTech</b> Development and learning.</p> <p><b>Multimedia</b> Multimedia and graphics.</p> <p><i>Allow room for discussion</i></p>	<p>shares his/her views and the impacts on the facilitation in class.</p> <p>1.3 Read the introduction, lesson description and the purpose of Lesson 7 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p><i>E.g., Demonstrate knowledge and Practice responsible use of technology systems, information, and software. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3.</i></p> <p><b>Distinctive Aspects</b></p> <p>1.4 Brainstorm the distinctive aspects of the lesson/s for group discussion i.e.</p> <p><b>EdTech</b> Development and learning.</p> <p><b>Multimedia</b> Multimedia and graphics.</p> <p><i>Allow room for discussion</i></p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>Identification and discussion of new learning, potential barriers to learning for</li> </ul>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to list and share the major concepts in the lesson. E.g.,</p> <p><b>EdTech-</b> Development and Learning competencies.</p>	<p><b>Concept Development</b></p> <p>2.1 List and share the major concepts in the lesson.E.g.,</p> <p><b>EdTech-</b> Development and Learning competencies.</p>	<p><b>15 mins</b></p>

<p>student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Multimedia-</b> Reusability templates</p> <p>2.1.1 Ask tutors to discuss the major concepts.</p> <p>2.2 Ask tutors to write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. <i>e.g., some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.</i></p> <p>2.3 Ask tutors to identify some appropriate teaching strategies that can be used to best explain the new concepts identified.  <i>E.g., grouping student teachers to discuss the topic “Development and Learning competencies in the classroom “as an activity.</i></p>	<p><b>Multimedia-</b> Reusability templates</p> <p>2.1.1 Discuss the major concepts.</p> <p>2.2 Write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. <i>e.g., some student teachers might not have had knowledge and understanding of responsible use of technology systems, information, and software in the classroom.</i></p> <p>2.3 Identify some appropriate teaching strategies that can be used to best explain the new concepts identified.  <i>E.g., grouping student teachers to discuss the topic “Development and Learning competencies in the classroom “as an activity.</i></p>	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 In groups of two guide tutors to watch a YouTube video with their mobile phones and discuss the teaching and learning activities in the course manuals.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 In groups of two, watch a YouTube video with your mobile phones and discuss the teaching and learning activities in the course manuals.</p>	<p><b>40 mins</b></p>

<p>addressing areas where tutors may require clarification</p> <ul style="list-style-type: none"> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills.</li> <li>• 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.</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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;</li> </ul> </li> </ul>	<p><b>EdTech:</b> Watch a YouTube video on transfer of learning <a href="https://youtu.be/60xPv4ckmU4">https://youtu.be/60xPv4ckmU4</a></p> <p><b>Multimedia:</b> Watch YouTube video on Multimedia and Graphics <a href="https://youtu.be/HJ8nkUSkG9E">https://youtu.be/HJ8nkUSkG9E</a></p> <p>3.1.1 Ask tutors to identify areas in the video that require further clarifications.</p> <p>3.2 Ask tutors to discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for Lesson 7.</p> <p><i>E.g., put student teachers in smaller groups to create a social media group for themselves (e.g., Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device.</i></p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p>	<p><b>EdTech:</b> Watch a YouTube video on transfer of learning <a href="https://youtu.be/60xPv4ckmU4">https://youtu.be/60xPv4ckmU4</a></p> <p><b>Multimedia:</b> Watch YouTube video on Multimedia and Graphics <a href="https://youtu.be/HJ8nkUSkG9E">https://youtu.be/HJ8nkUSkG9E</a></p> <p>3.1.1 Identify areas in the video that require further clarifications.</p> <p>3.2 Discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for Lesson 7.</p> <p><i>E.g., put student teachers in smaller groups to create a social media group for themselves (e.g., Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device.</i></p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p>	
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<p>how they should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> <li>● Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p><i>e.g., Gender responsiveness and making resources available for people with disabilities.</i></p> <p>3.4 Ask tutors to identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g., Watching a YouTube video on why the need for Integrating technology into teaching.</i></p> <p>3.5 Ask tutors to read the assessment activities in the course manuals. <i>E.g., Student teacher to write reflective notes on what is learning to go into their portfolio.</i></p> <p>3.5.1 Ask tutors to discuss the assessment activities taking note of areas that needs clarification.</p> <p>3.6 Ask tutors to identify other inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. <i>E.g., Multimedia and graphics software.</i></p>	<p><i>e.g., Gender responsiveness and making resources available for people with disabilities.</i></p> <p>3.4 Identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g., Watching a YouTube video on why the need for Integrating technology into teaching.</i></p> <p>3.5 Read the assessment activities in the course manuals. <i>E.g., Student teacher to write reflective notes on what is learning to go into their portfolio.</i></p> <p>3.5.1 Discuss the assessment activities taking note of areas that needs clarification.</p> <p>3.6 Identify other inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. <i>E.g., Multimedia and graphics software.</i></p>	
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	3.7 Ensure that everybody has a concrete plan for teaching the given topics.	3.7 Make sure you have a concrete plan for teaching the given topics.	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Ask tutors to identify a critical friend to observe the PD session and report on observation during next PD session.</p> <p>4.2 Ask tutors to individually identify any outstanding issues relating to the lesson 7 to be addressed.</p> <p><i>NB: Give time for discussion if any.</i></p> <p>4.3 Ask tutors to read lesson 8 from the PD manual and find its relevant materials for the next session.</p>	<p><b>Evaluation and review</b></p> <p>4.1 Identify a critical friend to observe the PD session and report on observation during next PD session.</p> <p>4.2 Identify any outstanding issues relating to the lesson 7 to be addressed.</p> <p><i>NB: Give time for discussion if any.</i></p> <p>4.3 Read lesson 8 from the PD manual and find its relevant materials for the next session.</p>	<b>15 mins</b>

Age Levels/s: JHS

Name of Subject/s: ICT  
**Multimedia Authoring in Education**  
 Topic: *Special Features of the Authoring Systems III*

**Educational Instructional Technology**  
 Topic: *Cognitive Science and Research-Based attributes of effective learning environments II*

### Tutor PD Session for Lesson 8 in the Course Manual

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• A critical friend to share findings for a short discussion and lessons learned</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> </ul>	<p><b>INTRODUCTION</b>  <i>Begin the lesson with an Ice Breaker</i></p> <p>1.1 Through questioning, ask tutors to review and reflect on the previous PD Session, i.e., Lesson 7 and how useful it was on lessons taught.</p> <p><b>EdTech:</b> Learners and Learning</p> <p><b>Multimedia:</b> Reusability templates</p>	<p><b>INTRODUCTION</b>  <i>Begin the lesson with an Ice Breaker</i></p> <p>1.1 Review and reflect on the previous PD Session, i.e., Lesson 7 and how useful it was on lessons taught.</p> <p><b>EdTech:</b> Learners and Learning</p> <p><b>Multimedia:</b> Reusability templates</p>	<p><b>20 mins</b></p>

<ul style="list-style-type: none"> <li>Overview of content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</li> </ul>	<p>1.2 Invite the critical friend who observed lesson 7 to share his/her views.</p> <p>1.3 Ask tutors to read and identify the main features of the lesson from the course manual (lesson description, learning outcomes and their corresponding indicators) individually.</p> <p><b>E.g., Learning Outcome:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p><b>Distinctive Aspect</b></p> <p>1.4 Ask tutors to brainstorm the distinctive aspect of the lesson 8. E.g.,</p> <p><b>Multimedia</b></p> <p>i. Multimedia Databases ii. Reusability templates</p> <p><b>EdTech:</b></p> <p>i. Teachers and Teaching. ii. Teaching for In Depth Learning</p> <p>1.4.2 Ask tutors to identify areas that need further clarification in the lesson. E.g.</p> <p><b>EdTech:</b> Expect Techers</p>	<p>1.2 The critical friend who observed lesson 7 should share his/her observations.</p> <p>1.3 Read and identify the main features of the lesson from the course manual (lesson description, learning outcomes and their corresponding indicators) individually.</p> <p><b>E.g., Learning Outcome:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p><b>Distinctive Aspect</b></p> <p>1.4 Brainstorm the distinctive aspect of the lesson 8. E.g.,</p> <p><b>Multimedia</b></p> <p>i. Multimedia Databases ii. Reusability templates</p> <p><b>EdTech:</b></p> <p>i. Teachers and Teaching. ii. Teaching for In Depth Learning</p> <p>1.4.2 Identify areas that need further clarification in the lesson. E.g.</p> <p><b>EdTech:</b> Expect Techers</p>	
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	<p><b>Multimedia:</b> Separation of interface Design and content design.</p>	<p><b>Multimedia:</b> Separation of interface Design and content design.</p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1 In groups of at least two (2) ask tutors to list and share the major concepts in lesson 8.</p> <p>2.1.1 Using concept maps lead tutors to engage in a discussion on the major concepts. i.e.</p> <p><b>EdTech:</b> Teaching for In Depth Learning</p> <p><b>Multimedia:</b> Separation of Interface Design and Content Design.</p> <p>2.2 Ask tutors to write any possible barriers in learning the concept above for discussion. E.g., <b>Barrier:</b> Inadequate resources (laptops, internet etc.) for hands-on practical in various schools.</p> <p>2.3 Ask tutors to identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., <b>Mobile Learning (M-Learning)</b> - breaks class into small diverse groups to identify and discuss</p>	<p><b>Concept Development</b></p> <p>2.1 In groups of at least two (2) list and share the major concepts in lesson 8.</p> <p>2.1.1 Using concept maps engage in a discussion on the major concepts. i.e.</p> <p><b>EdTech:</b> Teaching for In Depth Learning</p> <p><b>Multimedia:</b> Separation of Interface Design and Content Design</p> <p>2.2 Write any possible barriers in learning the concept above for discussion. E.g., <b>Barrier:</b> Inadequate resources (laptops, internet etc.) for hands-on practical in various schools.</p> <p>2.3 Identify appropriate teaching strategies that can best explain the new concepts identified.</p> <p>E.g., <b>Mobile Learning (M-Learning)</b> - breaks class into small diverse groups to identify and discuss</p>	<p><b>15 mins</b></p>

	how Separation of Interface Design and Content Design using their mobile phones and how this is relevant in the teaching and learning process.	how Separation of Interface Design and Content Design using their mobile phones and how this is relevant in the teaching and learning process.	
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities.</li> <li>• Noting and addressing areas where tutors may require clarification.</li> <li>• Noting opportunities for making links to the Basic School Curriculum.</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills.</li> <li>• Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask Tutors to read through the teaching and learning activities outlined in lesson 8 of the course manual for group discussion. I.e.,</p> <p><b>EdTech:</b> Teachers and Teaching</p> <p><b>Multimedia Authoring:</b> Separation of Interface Design and Content Design</p> <p>3.1.1 Ask tutors to watch a video on:</p> <p><b>EdTech:</b> Teachers and teaching - <a href="https://youtu.be/KVLTxKyxi">https://youtu.be/KVLTxKyxi</a> <u>oA</u></p> <p><b>Multimedia:</b> Separation of interface <a href="https://youtu.be/dWf5LT6ARRQ">https://youtu.be/dWf5LT6ARRQ</a></p> <p>3.1.2 Ask tutors to discuss their findings among themselves.</p> <p>3.1.1 Ask tutors to note areas that require clarification and/or contribution.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Read through the teaching and learning activities outlined in lesson 8 of the course manual for group discussion. I.e.,</p> <p><b>EdTech:</b> Teachers and Teaching</p> <p><b>Multimedia Authoring:</b> Separation of Interface Design and Content Design</p> <p>3.1.1 Watch a video on:</p> <p><b>EdTech:</b> Teachers and teaching - <a href="https://youtu.be/KVLTxKyxi">https://youtu.be/KVLTxKyxi</a> <u>oA</u></p> <p><b>Multimedia:</b> Separation of interface <a href="https://youtu.be/dWf5LT6ARRQ">https://youtu.be/dWf5LT6ARRQ</a></p> <p>3.1.2 Discuss the findings among yourselves.</p> <p>3.1.1 Note areas that require clarification and/or contribution.</p>	<b>40 mins</b>

<p>assessment to support student teacher learning.</p> <ul style="list-style-type: none"> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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.</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning.</li> <li>○ Tutors should be expected to have a plan for the next lesson for student teachers.</li> </ul> </li> </ul>	<p>E.g., Separation of Multimedia content and interface.</p> <p>3.2 In groups of at least two (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 the course manual for Lesson 8.</p> <p>E.g., <b>Teaching:</b> Teacher teaches and student teacher/students emulate his/her teaching.</p> <p>3.3 Using think-pair-share, ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p>E.g., Males, females and peoples with SEN taking turns in leading roles.</p> <p>3.4 Ask tutors to identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., The use of a mobile phones to watch a YouTube video on the internet.</p>	<p>E.g., Separation of Multimedia content and interface.</p> <p>3.2 In groups of at least two (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 the course manual for Lesson 8.</p> <p>E.g., E.g., <b>Teaching:</b> Teacher teaches and student teacher/students emulate his/her teaching.</p> <p>3.3 Using think-pair-share, discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p>E.g., Males, females and peoples with SEN taking turns in leading roles.</p> <p>3.4 Identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., The use of a mobile phones to watch a YouTube video on the internet.</p>	
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	<p>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 on NTEAP related activities.</p> <p>E.g. <b>Teaching</b> – ask student teacher/student to prepare a TLR for a lesson.</p> <p>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.</p> <p>E.g., <i>Multimedia resources.</i></p> <p>3.7 Ask tutors to brainstorm a plan that will be appropriate for the next lesson.</p> <p>E.g., <b>Multimedia:</b> Internet Access.</p> <p><b>EdTech:</b> Tools of Technology.</p>	<p>3.4 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.</p> <p>E.g., <b>Teaching</b> – ask student teacher/student to prepare a TLR for a lesson.</p> <p>3.5 List the needed inclusive resources for the teaching and learning of the concepts identified in both CoE and basic school classroom.</p> <p>E.g., <i>Multimedia resources.</i></p> <p>3.7 Brainstorm a plan that will be appropriate for the next lesson.</p> <p>E.g., <b>Multimedia:</b> Internet Access.</p> <p><b>EdTech:</b> Tools of Technology.</p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to</li> </ul>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Ask tutors to identify a critical friend to observe the PD session and report on observation during next PD session.</p> <p>4.2 Ask tutors to individually identify any outstanding issues relating to the lesson 8 to be addressed.</p>	<p><b>Evaluation and review</b></p> <p>4.1 Identify a critical friend to observe the PD session and report on observation during next PD session.</p> <p>4.2 Identify any outstanding issues relating to the lesson 8 to be addressed.</p>	<p><b>15 mins</b></p>

<p>the lesson/s for clarification</p>	<p><i>NB: Give time for discussion if any.</i></p> <p>4.3 Ask tutors to read Lesson 9 from the PD manual and find its relevant materials for the next session.</p>	<p><i>NB: Give time for discussion if any.</i></p> <p>4.3 Read Lesson 9 from the PD manual and find its relevant materials for the next session.</p>	
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Age Levels/s: JHS

Name of Subject/s: ICT

Multimedia Authoring in Education

Topic: *Special Features of the Authoring Systems IV*

Educational Instructional Technology

Topic: *Cognitive Science and Research-Based attributes of effective learning environments III*

### Tutor PD Session for Lesson 9 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. <i>What the SL/HoDs will have to say during each stage of the session</i>	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
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>Review prior learning</li> <li>A critical friend to share findings for a short discussion and lessons learned</li> <li>Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators.</li> <li>Overview of</li> </ul>	<p><b>Introduction to the session</b></p> <p>1.1 Ask tutors to review and reflect on the previous PD Session, Lesson 8, and how useful it was on lessons taught. i.e.,</p> <p><b>EdTech:</b> <i>Cognitive Science and Research-Based attributes of effective learning environments II.</i></p> <p><b>Multimedia:</b> <i>Special Features of the Authoring Systems III.</i></p> <p>1.2 Invite tutors who observed Lesson 8 to</p>	<p><b>Introduction to the session</b></p> <p>1.1 Review and reflect on the previous PD Session, Lesson 8, and how useful it was on lessons taught.i.e.,</p> <p><b>EdTech:</b> <i>Cognitive Science and Research-Based attributes of effective learning environments II</i></p> <p><b>Multimedia:</b> <i>Special Features of the Authoring Systems III.</i></p> <p>1.2 Tutors who observed Lesson 8 to share their</p>	<p><b>20 mins</b></p>

<p>content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session.</p>	<p>share their experiences and the impacts on their facilitating in class.</p> <p>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.</p> <p>1.4 Ask tutors to Identify the distinctive aspects of the lesson. i.e.</p> <p><b>EdTech:</b></p> <p>i. Learning Environments Tools of Technology.</p> <p>ii. Assessment to support Learning.</p> <p><b>Multimedia:</b></p> <p>i. Internet Access</p> <p>ii. Button Based Interactivity.</p> <p><i>1.4.1 Ask tutors to discuss the distinctive concepts identified in the lesson in pairs.</i></p> <p>1.5 Ask 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.</p>	<p>experiences and the impacts on their facilitating in class.</p> <p>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.</p> <p>1.4 Identify the distinctive aspects of the lesson. i.e.</p> <p><b>EdTech:</b></p> <p>i. Learning Environments Tools of Technology.</p> <p>ii. Assessment to support Learning.</p> <p><b>Multimedia:</b></p> <p>i. Internet Access</p> <p>ii. Button Based Interactivity.</p> <p><i>1.4.1 Discuss the distinctive concepts identified in the lessons in pairs.</i></p> <p>1.5 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.</p>	
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<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to be in pairs to write any major concept in the lesson and share with the whole group.</p> <p>e.g.,</p> <p><b>EdTech-</b></p> <ol style="list-style-type: none"> <li>Learning and Connections to Community</li> <li>Assessment to support Learning.</li> </ol> <p><b>Multimedia-</b></p> <ol style="list-style-type: none"> <li>Internet Access</li> <li>Button Based Interactivity.</li> </ol> <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed above.</p> <p><i>E.g.,</i> there is no in-depth knowledge and understanding of responsible use of technology systems like an interactive board in the classroom.</p> <p>2.3 Ask tutors to identify the most appropriate teaching strategies that can best explain the new concepts identified.</p> <p><i>E.g.,</i> Student teachers surf the internet using their mobile phones for further explanations of learning environment as well as tools of technology in the teaching and learning process.</p>	<p><b>Concept Development</b></p> <p>2.1 In pairs, write any major concept in the lesson and share with the whole group.</p> <p>e.g.,</p> <p><b>EdTech-</b></p> <ol style="list-style-type: none"> <li>Learning and Connections to Community</li> <li>Assessment to support Learning.</li> </ol> <p><b>Multimedia-</b></p> <ol style="list-style-type: none"> <li>Internet Access</li> <li>Button Based Interactivity.</li> </ol> <p>2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed above.</p> <p><i>E.g.,</i> there is no in-depth knowledge and understanding of responsible use of technology systems like an interactive board in the classroom.</p> <p>2.3 Identify the most appropriate teaching strategies that can best explain the new concepts identified.</p> <p><i>E.g.,</i> Student teachers surf the internet using their mobile phones for further explanations of learning environment as well as tools of technology in the teaching and learning process.</p>	<p><b>15 mins</b></p>
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<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities.</li> <li>• Noting and addressing areas where tutors may require clarification.</li> <li>• Noting opportunities for making links to the Basic School Curriculum.</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills.</li> <li>• 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.</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ links to the existing PD Themes, for example,</li> </ul> </li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask tutors to watch a YouTube video and discuss the teaching and learning activities in the course manuals. i.e.,</p> <p><b>EdTech.</b></p> <p>Watch some minutes YouTube video on positive Learning Environments <a href="https://youtu.be/PLKC2-WYuqU">https://youtu.be/PLKC2-WYuqU</a></p> <p><b>Multimedia:</b></p> <p>Watch a YouTube video on Button Based Interactivity, Issues and Implication. <a href="https://youtu.be/d_TiPQ60Zuo">https://youtu.be/d_TiPQ60Zuo</a></p> <p>3.1.1 Ask tutors to identify areas in the video they watched that require further clarifications.</p> <p>3.2 Engage tutors to discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for Lesson 9.</p> <p><i>Note: ensure all instructions carried out are gender responsive. Making both gender active in the discussion.</i></p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Watch a YouTube video and discuss the teaching and learning activities in the course manual. i.e.,</p> <p><b>EdTech.</b></p> <p>Watch some minutes YouTube video on positive Learning Environments <a href="https://youtu.be/PLKC2-WYuqU">https://youtu.be/PLKC2-WYuqU</a></p> <p><b>Multimedia:</b></p> <p>Watch a YouTube video on Button Based Interactivity, Issues and Implication. <a href="https://youtu.be/d_TiPQ60Zuo">https://youtu.be/d_TiPQ60Zuo</a></p> <p>3.1.1 Identify areas in the video you watched that require further clarifications.</p> <p>3.2 Discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for Lesson 9.</p> <p><i>Note: ensure all instructions carried out are gender responsive. Both genders should be active in the discussion.</i></p>	<p><b>40 mins</b></p>
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<p>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</p> <ul style="list-style-type: none"> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning.</li> <li>○ Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>e.g., Assigning leadership roles to females if applicable.</i></p> <p>3.4 Ask tutors to identify any other 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities. <i>E.g., The use of Tablet to prepare and present lessons.</i></p> <p>3.5 Lead tutors to read the assessment activities in the course manual and identify areas that require clarification. <b>Example from the courses is as follows</b></p> <p><b>Multimedia-</b> understanding of Special Features of Authoring Systems and perform multimedia Authoring using e.g., Reusability / Object Oriented Icons.</p> <p><b>EdTech-</b> “A project on the technology learning tools available in the STS school and how these can be used to enable learning and assessment. Student</p>	<p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>e.g., Assigning leadership roles to females if applicable.</i></p> <p>3.4 Identify any other 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities. <i>E.g., The use of Tablet to prepare and present lessons.</i></p> <p>3.5 Read the assessment activities in the course manual and identify areas that require clarification. <b>Example from the courses are as follows</b></p> <p><b>Multimedia-</b> understanding of Special Features of Authoring Systems and perform multimedia Authoring using e.g., Reusability / Object Oriented Icons.</p> <p><b>EdTech-</b> “A project on the technology learning tools available in the STS school and how these can be used to enable learning and assessment. Student</p>	
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	<p>teachers to write a project report”.</p> <p><b><i>These could be added to their subject portfolio/project.</i></b></p> <p>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., Laptops Games, Audio-visuals from YouTube.</p> <p>3.7 Ensure that everybody has a concrete plan for teaching the next topic.</p>	<p>teachers to write a project report”.</p> <p><b><i>These could be added to their subject portfolio/project.</i></b></p> <p>3.6 Identify other inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. E.g., laptops, Games, Audio-visuals from YouTube.</p> <p>3.7 Everybody should ensure he/she has a concrete plan for teaching the next topic.</p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Remind tutors to identify a critical friend who took part in the PD session to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Ask tutors to Individually identify any outstanding issues relating to the lesson 9 to be addressed.</p> <p>4.3 Ask tutors to read lesson 10 from the PD manual and find its relevant materials for the next session.</p>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observation during next PD session.</p> <p>4.2 Identify any outstanding issues relating to the lesson 9 to be addressed.</p> <p>4.3 Read lesson 10 from the PD manual and find its relevant materials for the next session.</p>	15 mins

Age Levels/s: JHS

Name of Subject/s: ICT  
 Multimedia Authoring in Education  
 Topic: Design Metaphor/ Authoring paradigms I

Educational Instructional Technology  
 Topic: Equity in Using Technology in the Classroom I

### Tutor PD Session for Lesson 10 in the Course Manual

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session. What the SL/HoDs will have to say during each stage of the session</b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• A critical friend to share findings for a short discussion and lessons learned</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> </ul>	<p><b>Introduction to the session</b></p> <p>1.1 Ask tutors to write one (1) thing they learnt in their last PD session. i.e.,</p> <p><b>EdTech:</b> Positive learning environment</p> <p><b>Multimedia:</b> Internet Access</p> <p>1.1.1 Ask tutors to share what they have written for whole group</p>	<p><b>Introduction to the session</b></p> <p>1.1 Write one (1) thing learnt in the last PD session. i.e.,</p> <p><b>EdTech:</b> Positive learning environment</p> <p><b>Multimedia:</b> Internet Access</p> <p>1.1.1 Share what you have written for whole group discussion.</p>	<p><b>20 mins</b></p>

<ul style="list-style-type: none"> <li>Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>discussion.</p> <p>1.2 Invite tutors who observed Lesson 9 to share their experiences and the impacts on their facilitating in class.</p> <p>1.3 Refer tutors to read the introduction, lesson description and the purpose of lesson 10 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>E.g., Demonstrate knowledge and understanding and use of Design Metaphor/ Authoring NTS: <b>1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p> <p><b>Distinctive Aspect</b></p> <p>1.4 Ask tutors to write at least two (2) distinctive aspects of the lesson for discussion. i.e.</p> <p><b>EdTech</b> Instructional approaches that support Inclusion</p> <p><b>Multimedia</b> Multimedia Authoring metaphors</p> <p>1.4.1 Ask tutors to pair and share their responses with a colleague.</p>	<p>1.2 Tutors who observed Lesson 9 to share their experiences and the impacts when facilitating in class.</p> <p>1.3 Read the introduction, lesson description and the purpose of lesson 10 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>E.g., Demonstrate knowledge and understanding and use of Design Metaphor/ Authoring NTS: <b>1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p> <p><b>Distinctive Aspect</b></p> <p>1.4 <i>Write at least two (2) distinctive aspects of the lesson discussion. i.e.</i></p> <p><b>EdTech</b> Instructional approaches that support Inclusion</p> <p><b>Multimedia</b> Multimedia Authoring metaphors</p> <p>1.4.1 Pair and share responses with a colleague.</p>	
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<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to be in pairs and write at least two major concepts in the lesson and share with the whole group</p> <p>e.g.,</p> <p><b>EdTech:</b> Cultural and Linguistic Diversity</p> <p><b>Multimedia:</b> Scripting Paradigms</p> <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed above.</p> <p><i>E.g., Cultural and Linguistic Diversity has an influence in technology integration.</i></p> <p>2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified.</p> <p><i>E.g., Using demonstration to teach student teachers in the use of their mobile phones to record classroom activities for their portfolio.</i></p>	<p><b>Concept Development</b></p> <p>2.1 In pairs, write at least two major concepts in the lesson and share with the whole group.</p> <p>e.g.,</p> <p><b>EdTech</b> Cultural and Linguistic Diversity</p> <p><b>Multimedia</b> Scripting Paradigms</p> <p>2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed above.</p> <p><i>E.g., Cultural and Linguistic Diversity has an influence in technology integration.</i></p> <p>2.3 Identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified</p> <p><i>E.g., Using demonstration to teach student teachers in the use of their mobile phones to record classroom activities for their portfolio.</i></p>	<p><b>15 mins</b></p>
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<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ links to the existing PD Themes, for example, action research, questioning and to other</li> </ul> </li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask tutors to read the teaching and learning activities of lesson 10 from the course manual. E.g.,</p> <p><b>EdTech.</b> Watch short videos from YouTube on Instructional approaches that support Inclusion</p> <p><a href="https://youtu.be/00sRVmZa_zg">https://youtu.be/00sRVmZa_zg</a></p> <p><b>Multimedia:</b> Use Interactive lecturette to discuss the meaning of multimedia authoring and use questions to elicit answers to draw out meaning of multimedia authoring metaphors.</p> <p>3.1.1 Ask tutors to identify areas in the video they watched that require further clarifications.</p> <p>3.2 lead tutors in a discussion on how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 10.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Read the teaching and learning activities of lesson 10 from the course manual. E.g.,</p> <p><b>EdTech.</b> Watch short videos from YouTube on Instructional approaches that support Inclusion</p> <p><a href="https://youtu.be/00sRVmZa_zg">https://youtu.be/00sRVmZa_zg</a></p> <p><b>Multimedia:</b> Use Interactive lecturette to discuss the meaning of multimedia authoring and use questions to elicit answers to draw out meaning of multimedia authoring metaphors.</p> <p>3.1.1 Identify areas in the video you watched that require further clarifications.</p> <p>3.2 Discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 10.</p>	<p><b>40 mins</b></p>
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<p>external reference material: literature, on web, Utube, 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</p> <ul style="list-style-type: none"> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p><i>Note: remind Tutors to ensure that all instructions carried out should be gender responsive (e.g., equity, inclusivity, diversity).</i></p> <p>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. <i>e.g., diversity</i></p> <p>3.4 Ask tutors to identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., Watching a YouTube video on the types of authoring metaphors/paradigms</p> <p>3.5 Ask tutors to read the assessment activities in the course manuals and identify areas that require clarification. <i>Example from the courses are as follows</i></p> <p><i>Student teachers to develop a wiki in their groups on approached to enhance inclusivity in school. The Wiki is to go into their portfolio</i></p>	<p><i>Note: all instructions carried out should be gender responsive (e.g., equity, inclusivity, diversity).</i></p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed in the lesson. <i>e.g., diversity</i></p> <p>3.4 Identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., Watching a YouTube video on the types of authoring metaphors/paradigms</p> <p>3.5 Read the assessment activities in the course manuals and identify areas that require clarification. <i>Example from the courses are as follows</i></p> <p><i>Student teachers to develop a wiki in their groups on approached to enhance inclusivity in school. The Wiki is to go into their portfolio.</i></p>	
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	<p><b><i>These could be added to their subject portfolio/project</i></b></p> <p>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., Games, Audio-visuals from YouTube</p> <p>3.7 Ask tutors to have concrete plan for teaching the given topics. <i>In the case of unresolved issues consult the subject writing leads.</i></p>	<p><b><i>These could be added to their subject portfolio/project</i></b></p> <p>3.6 Identify other inclusive resources for teaching and learning of the concepts in both CoE and basic school classroom. E.g., Games, Audio-visuals from YouTube</p> <p>3.7 Everybody should ensure he/she has a concrete plan for teaching next given topic. <i>In the case of unresolved issues consult the subject writing leads.</i></p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Ask tutors to Individually identify a critical friend who took part in the PD session to sit in their class during lesson and report on observation during next PD session.</p> <p>4.2 Ask tutors to Individually identify any outstanding issues relating to the lesson 10 to be addressed.</p> <p>4.3 Ask tutors to read lesson 11 from the PD manual and find its relevant materials for the next session.</p>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Individually remember to identify a critical friend who took part in the PD session to sit in your class during lesson and report on observation during next PD session.</p> <p>4.2 Identify any outstanding issues relating to the lesson 10 to be addressed.</p> <p>4.3 Read lesson 11 from the PD manual and find its relevant materials for the next session.</p>	<b>15 mins</b>

Age Levels/s: JHS

Name of Subject/s: ICT  
**Multimedia Authoring in Education**  
 Topic: *Design Metaphor/ Authoring paradigms II*

**Educational Instructional Technology**  
 Topic: *Equity in Using Technology in the Classroom II*

### Tutor PD Session for Lesson 11 in the Course Manual

<p>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.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• A critical friend to share findings for a short discussion and lessons learned</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of</li> </ul>	<p><b>Introduction to the session</b></p> <p>1.1 Ask tutors to review and reflect on the previous PD Session (Lesson 10) and its benefits on their lessons taught i.e.,</p> <p><b>EdTech:</b> Differentiated Instruction</p> <p><b>Multimedia:</b> Scripting Paradigms</p> <p>1.2 Invite the critical friend who observed Lesson 10 to share his/her views and the impacts</p>	<p><b>Introduction to the session</b></p> <p>1.1 Review and reflect on the previous PD Session (Lesson 10) and its benefits on the lesson thought i.e.,</p> <p><b>EdTech:</b> Differentiated Instruction</p> <p><b>Multimedia:</b> Scripting Paradigms</p> <p>1.2 The critical friend who observed lesson 10 shares his/her observations.</p>	<p><b>20 mins</b></p>

<p>content and identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3 Ask tutors to read and identify the main features of lesson 11 from the course manual (introduction, lesson description, learning outcomes and their corresponding indicators) and indicate how they are related to student teachers' previous knowledge.</p> <p><b>E.g., Learning Outcome:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p><b>Distinctive Aspects</b></p> <p>1.4 Ask tutors to brainstorm on distinctive aspects of the lesson/s for group discussion i.e.</p> <p><b>EdTech</b> Differentiated Instruction</p> <p><b>Multimedia</b> Icon Based/Flow control Paradigms</p> <p>1.4.1 <i>Ask tutors to discuss the distinctive aspects identified in the lesson in pairs.</i></p> <p><b>NB:</b> <i>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</i></p>	<p>1.3 Read and identify the main features of lesson 11 from the course manual (introduction, lesson description, learning outcomes and their corresponding indicators) and indicate how they are related to student teachers' previous knowledge.</p> <p><b>E.g., Learning Outcome:</b> Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</p> <p><b>Distinctive Aspects</b></p> <p>1.4 Brainstorm on distinctive aspects of the lesson/s for group discussion i.e.</p> <p><b>EdTech</b> Differentiated instruction</p> <p><b>Multimedia</b> Icon Based/Flow control Paradigms</p> <p>1.4.1 <i>Discuss the distinctive aspects identified in the lesson in pairs.</i></p> <p><b>NB:</b> <i>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</i></p>	
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<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1 Ask tutors to list and share the major concepts in the lesson.</p> <p>E.g., <b>EdTech</b> Materials of Instruction</p> <p><b>Multimedia</b> Icon Based/Flow control Paradigms 2.1.1 Ask tutors to discuss the major concepts they have listed.</p> <p>2.2 Ask tutors to write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. e.g., <b>Challenge: Readiness for digital teaching and learning materials (Multimedia contents)</b></p> <p>2.3 Ask tutors to identify some appropriate teaching strategies that can be used to best explain the new concepts identified.</p> <p>E.g., <b>Project based Learning:</b> teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge.</p>	<p><b>Concept Development</b></p> <p>2.1 List and share the major concepts in the lesson.</p> <p>E.g., <b>EdTech</b> Materials of Instruction</p> <p><b>Multimedia</b> Icon Based/Flow control Paradigms 2.1.1 Discuss the major concepts you have listed.</p> <p>2.2 Write two (2) possible challenges/ misconceptions in teaching the concept above for discussion. e.g., <b>Challenge: Readiness for digital teaching and learning materials (Multimedia contents)</b></p> <p>2.3 Identify some appropriate teaching strategies that can be used to best explain the new concepts identified</p> <p>E.g., <b>Project based Learning:</b> teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge</p>	<p><b>15 mins</b></p>
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<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ links to the existing PD Themes, for example, action</li> </ul> </li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 In groups, ask tutors to use think-pair-share to discuss the teaching and learning activities in the course manuals. E.g.,</p> <p><b>EdTech:</b> Materials of Instruction</p> <p><b>Multimedia:</b> Icon Based/Flow control Paradigms</p> <p>3.1.1 Ask tutors to identify areas that require further clarifications</p> <p>3.2 Ask tutors to discuss how these different activities would be carried out in both CoE and basic school curriculum to achieve the LOs and the LIs of the course manual for lesson 11. E.g., Put student teachers/Students in smaller groups to demonstrate with a computer how to put materials of instruction together.</p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>e.g.,</i> Males, females and peoples with disabilities taking turns in leading roles.</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 In groups, use think-pair-share to discuss the teaching and learning activities in the course manuals. E.g.,</p> <p><b>EdTech:</b> Materials of Instruction</p> <p><b>Multimedia:</b> Icon Based/Flow control Paradigms</p> <p>3.1.1 Identify areas that require further clarifications.</p> <p>3.2 Discuss how these different activities would be carried out in both CoE and basic school curriculum to achieve the LOs and the LIs of the course manual for lesson 11. E.g., Put student teachers/Students in smaller groups to demonstrate with a computer how to put materials of instruction together.</p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed. <i>e.g.,</i> Males, females and peoples with disabilities taking turns in leading roles.</p>	<p><b>40 mins</b></p>
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<p>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 guidance on any power point presentations, TLM or other resources which need to be developed to support learning.</p> <p>Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p>3.4 Ask tutors to identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., <b>Project based Learning:</b> teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge</p> <p>3.5 Ask tutors to read the assessment activities in the manual(s) and identify areas in the lesson that can be used for assessment especially on NTEAP related activities.</p> <p>E.g., <b>Material Instruction</b> – ask student teacher/ student to design an instructional material.</p> <p>3.5.1 Ask tutors to discuss the assessment activities taking note of areas that needs clarification.</p> <p>3.6 Ask tutors to identify other inclusive resources for teaching</p>	<p>3.4 Identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., <b>Project based Learning:</b> teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge</p> <p>3.5 Read and discuss the assessment activities in the manual(s) and identify areas in the lesson that can be used for assessment especially on NTEAP related activities.</p> <p>E.g., <b>Material Instruction</b> – ask student teacher/student to design an instructional material.</p> <p>3.5.1 Discuss the assessment activities taking note of areas that needs clarification.</p> <p>3.6 Identify other inclusive resources for teaching and learning of the</p>	
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	<p>and learning of the concepts in both CoE and basic school classroom.</p> <p>E.g., Multimedia and graphics software.</p> <p>3.7 Ensure that everybody has a concrete plan for teaching the given topics.</p> <p>3.8 Ask tutors to brainstorm a plan that will be appropriate for teaching the next lesson.</p> <p><b>Multimedia:</b></p> <p>Hierarchical Object Paradigms</p> <p><b>EdTech:</b></p> <p>Impact on Education</p>	<p>concepts in both CoE and basic school classroom.</p> <p>E.g., Multimedia and graphics software.</p> <p>3.7 Make sure you have a concrete plan for teaching the given topics.</p> <p>3.8 Brainstorm a plan that will be appropriate for your teaching in the next lesson.</p> <p><b>Multimedia:</b></p> <p>Hierarchical Object Paradigms</p> <p><b>EdTech:</b></p> <p>Impact on Education</p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p><b>Evaluation and review</b></p> <p>4.1 Ask tutors to identify a critical friend to observe the PD session and report on observation during next PD session.</p> <p>4.2 Ask tutors to individually identify any outstanding issues relating to the lesson 11 to be addressed.</p> <p><i>NB: Give time for discussion if any.</i></p> <p>4.3 Ask tutors to read lesson 12 from the PD manual and find its relevant materials for the next session.</p>	<p><b>Evaluation and review</b></p> <p>4.1 Identify a critical friend to observe the PD session and report on observation during next PD session.</p> <p>4.2 Individually identify any outstanding issues relating to the lesson 11 to be addressed.</p> <p><i>NB: Give time for discussion if any.</i></p> <p>4.3 Read lesson 12 from the PD manual and find its relevant materials for the next session.</p>	<b>15 mins</b>

**Age Levels/s: JHS**

**Name of Subject/s: ICT**

**Multimedia Authoring in Education**

Topic: *Design Metaphor/ Authoring paradigms III*

**Educational Instructional Technology**

Topic: *Issues in Digital Technology in education*

**Tutor PD Session for Lesson 12 in the Course Manual**

<p><b>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.</b></p>	<p><b>Guidance notes on Leading the session. What the SL/HoDs will have to say during each stage of the session</b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>Review prior learning</li> <li>A critical friend to share findings for a short discussion and lessons learned</li> <li>Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>Overview of content and identification of</li> </ul>	<p><b>Introduction to the session</b></p> <p>1.1 Ask tutors to write any new thing they learnt in their last PD session on lesson 11. i.e.,</p> <p><b>EdTech:</b> Equity in Using Technology in the Classroom II</p> <p><b>Multimedia:</b> Design Metaphor/ Authoring paradigms II</p> <p>1.1.1 Ask tutors to share what they have written for whole group discussion.</p>	<p><b>Introduction to the session</b></p> <p>1.1 Write any new thing you learnt in the last PD session on lesson 11. i.e.,</p> <p><b>EdTech:</b> Equity in Using Technology in the Classroom II</p> <p><b>Multimedia:</b> Design Metaphor/ Authoring paradigms II</p> <p>1.1.1 Share what you have written for whole a group discussion.</p>	<p><b>20 mins</b></p>

<p>any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.2 Invite tutors who observed Lesson 11 to share their experiences to the group.</p> <p>1.3 Refer tutors to read the introduction, lesson description and the purpose of lesson 10 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>E.g., Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p> <p><b>Distinctive Aspect</b></p> <p>1.4 Ask tutors to write any two (2) distinctive aspects of the lesson for discussion. E.g.</p> <p><b>EdTech</b> Impact on Digital technology in Education</p> <p><b>Multimedia</b> Hierarchical Object Paradigms</p> <p>1.4.1 Ask tutors to share their responses with a colleague.</p>	<p>1.2 Tutors who observed Lesson 11 to share their experiences to the group.</p> <p>1.3 Read the introduction, lesson description and the purpose of lesson 10 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>E.g., Demonstrate understanding and apply technology resources for solving educational problems, and making informed decisions. <b>NTS: 1a, 1d, 2c, 2e/NTECF: Pillar 1&amp; 3</b></p> <p><b>Distinctive Aspect</b></p> <p>1.4 <i>Write any two (2) distinctive aspects of the lesson for discussion.</i> E.g.</p> <p><b>EdTech</b> Impact on Digital technology in Education</p> <p><b>Multimedia</b> Hierarchical Object Paradigms</p> <p>1.4.1 Share responses with a colleague.</p>	
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<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</li> </ul> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p><b>Concept Development</b></p> <p>2.1 Using interactive talk for learning lead tutors to engage in a discussion on the concepts:</p> <p>e.g., <b>EdTech:</b> Issues and Implications of digital technology in education</p> <p><b>Multimedia:</b> Tagging Paradigms</p> <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed above.</p> <p><i>E.g., Digital technology like the digital calculator does not promote critical thinking.</i></p> <p>2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified.</p> <p><i>E.g., Using demonstration to teach student teachers how to surf for information online.</i></p>	<p><b>Concept Development</b></p> <p>2.1 Using interactive talk for learning engage in a discussion on the concepts:</p> <p>e.g., <b>EdTech:</b> Issues and Implications of digital technology in education</p> <p><b>Multimedia:</b> Tagging Paradigms</p> <p>2.2 discuss the potential misconceptions and barriers with respect to the concepts listed above.</p> <p><i>E.g., Digital technology like the digital calculator does not promote critical thinking.</i></p> <p>2.3 Identify the most appropriate teaching strategies that can be employed to best explain the new concepts identified</p> <p><i>E.g., Using demonstration to teach student teachers how to surf for information online.</i></p>	<p><b>15 mins</b></p>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and</li> </ul>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Ask tutors to read the teaching and learning activities of lesson 12 from the course manual. E.g.,</p>	<p><b>Planning for teaching, learning and assessment activities</b></p> <p>3.1 Read the teaching and learning activities of lesson 12 from the course manual. E.g.,</p>	<p><b>40 mins</b></p>

<p>learning activities</p> <ul style="list-style-type: none"> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical</li> </ul> </li> </ul>	<p><b>EdTech:</b></p> <p>Watch the short video from YouTube on Issues in Digital technology in education and its Impacts on Education.</p> <p><a href="https://youtu.be/Tf3j3oac6HO">https://youtu.be/Tf3j3oac6HO</a></p> <p><b>Multimedia:</b></p> <p>Watch a video from YouTube on Hierarchical Object Paradigms, the need, uses and how to use Icon Hierarchical Object Paradigms in the classroom.</p> <p><a href="https://youtu.be/ucbxPuVmoIQ">https://youtu.be/ucbxPuVmoIQ</a></p> <p>3.1.1 Ask tutors to identify areas in the video they watched that require further clarifications.</p> <p>3.2 lead tutors in a discussion on how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 12.</p> <p><i>Note: remind Tutors to ensure that all instructions carried out should be gender responsive (e.g., equity, inclusivity, cultural diversity).</i></p> <p>3.3 Ask tutors to discuss how GESI issues related</p>	<p><b>EdTech:</b></p> <p>Watch the short video from YouTube on Issues in Digital technology in education and its Impacts on Education.</p> <p><a href="https://youtu.be/Tf3j3oac6HO">https://youtu.be/Tf3j3oac6HO</a></p> <p><b>Multimedia:</b></p> <p>Watch a video from YouTube on Hierarchical Object Paradigms, the need, uses and how to use Icon Hierarchical Object Paradigms in the classroom.</p> <p><a href="https://youtu.be/ucbxPuVmoIQ">https://youtu.be/ucbxPuVmoIQ</a></p> <p>3.1.1 Identify areas in the video you watched that require further clarifications.</p> <p>3.2 Discuss how these different activities from the video watched would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 12.</p> <p><i>Note: Ensure that all instructions carried out should be gender responsive (e.g., equity, inclusivity, cultural diversity).</i></p> <p>3.3 Discuss how GESI issues related to the teaching</p>	
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<p>resources, power point; how they should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> <li>● Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p>to the teaching and learning activities of the lesson would be addressed in the lesson.</p> <p><i>e.g., How cultural diversity would be addressed in teaching technology integration in the classroom.</i></p> <p>3.4 Ask tutors to identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., Watching a YouTube video on Hierarchical Object Paradigm.</p> <p>3.5 Ask tutors to read the assessment activities in the course manuals and identify areas that require clarification.</p> <p><i>Example from the courses are as follows</i></p> <p><i>Student teachers to develop a wiki in their groups on approached to enhance inclusivity in school. The Wiki is to go into their portfolio</i></p> <p><i>Note!!</i> <i>These could be added to their subject portfolio/project</i></p> <p>3.6. Ask tutors to identify other inclusive</p>	<p>and learning activities of the lesson would be addressed in the lesson.</p> <p><i>e.g., How cultural diversity would be addressed in teaching technology integration in the classroom.</i></p> <p>3.4 Identify any 21<sup>st</sup> century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>E.g., Watching a YouTube video on Hierarchical Object Paradigm.</p> <p>3.5 Read the assessment activities in the course manuals and identify areas that require clarification.</p> <p><i>Example from the courses are as follows</i></p> <p><i>Student teachers to develop a wiki in their groups on approached to enhance inclusivity in school. The Wiki is to go into their portfolio.</i></p> <p><i>Note!!</i> <i>These could be added to their subject portfolio/project</i></p> <p>3.6 Identify other inclusive resources for teaching</p>	
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	<p>resources for teaching and learning of the concepts in both CoE and basic school classroom.</p> <p>E.g., Smart phones, Audio-visuals from YouTube</p> <p>3.7 <i>Ask tutors to have concrete plan for teaching the given topics. In the case of unresolved issues consult the subject writing leads.</i></p>	<p>and learning of the concepts in both CoE and basic school classroom.</p> <p>E.g., Smart phones, Audio-visuals from YouTube</p> <p>3.7 Everybody should ensure he/she has a concrete plan for teaching next given topic.</p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Ask tutors to identify any outstanding issues relating to the lesson 12 and the other previous lessons to be addressed.</p>	<p><b>Evaluation and review of session:</b></p> <p>4.1 Individually, identify any outstanding issues relating to the lesson 12 and the other previous lessons to be addressed.</p>	15 mins

## Appendix 1

The PD session check list: supporting B.Ed. implementation.

*In some cases, to support implementation and address recent developments the PD session writers may need to add detail to what is covered in the course manuals*

What to Include in PD sessions	Checked and In Place.
<p><b>Course introductions and conclusions</b></p> <ul style="list-style-type: none"> <li>The first PD session of each semester introduces the course manual/s, course expectations and course assessment components</li> <li>The final PD session provides the opportunity to review student teachers' learning from the course</li> </ul>	
<p><b>Prior knowledge:</b> Points for tutors on activating student teachers' prior knowledge.</p>	
<p><b>Basic School Curriculum:</b> when topics for student teachers are from the Basic School Curriculum the PD session makes explicit links.</p>	
<p><b>LO:</b> relevance to each session are introduced</p>	
<p><b>Interactive teaching</b> PD sessions provide opportunities for SL/HOD to model interactive approaches to teaching and learning that tutors will use to support student teachers</p>	
<p><b>Lesson Learning outcomes and indicators</b> are introduced</p>	
<p><b>Integration of subject specific content and subject specific pedagogy</b> is modelled in PD sessions through activities for tutors. Any potentially new concepts introduced in the lesson are explored with tutors</p>	
<p><b>Subject Specific Training:</b> where subjects have been grouped together for the PD sessions, tutors are guided to engage with activities in the subject course manuals to ensure the PD is subject specific. Where appropriate there is direct page or point references to activities in each of the relevant subject course manuals.</p>	
<p><b>Integrating GESI:</b> each PD session explicitly includes at least two (2) teaching and learning activities from the course manual/s which should be used to promote student teachers' understanding of GESI responsiveness and support the inclusion of all pupils.</p>	
<p><b>Assessment, integrating and embedding NTEAP practices:</b> PD sessions include at least two (2) continuous assessment opportunities which will support tutors in developing student teacher's understanding of, and ability to apply, assessment for or as learning.</p>	
<p><b>Age Specific Training:</b> where relevant tutors are guided to specific activities in the course manuals for EG, UP and JHS. Tutors are advised to group student teachers according to the age they are training for.</p>	
<p><b>Building in STS:</b> STS tasks are integrated into the PD sessions. Preparing</p>	

for work in school and opportunities for tutors to draw on what student teachers are learning in school by, for example, targeting observations linked directly to the themes in the course manuals.	
<b>Building in activities which support the development of 21c skills in particular the use of ICT.</b> The development of these is integrated into the PD sessions including the use of ICT to support learning. Each PD session should include at least two (2) examples of students being required to use ICT to extend their learning.	
<b>Resources /TLM.</b> Where specific resources are required, it is clear where tutors can access them e.g., videos, online resources or readings.	

## Appendix 2. Course Assessment Components briefly

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?	<b>The Subject project</b> 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 mand 21stC skills	<b>The Subject Portfolio</b> 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 through examples of his or her best work.
CONSTITUENTS	<p><b>Introduction:</b> a clear statement of aim and purpose</p> <p><b>Methodology:</b> what the student teacher has done and why to achieve the aim and purpose of the project</p> <p><b>Substantive or main section:</b> 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.</p> <p><b>Conclusion:</b> Statement of the key outcomes of the project; reflection on what the student teacher has learnt</p>	<p><b>3 items of work produced during the semester selected by student teachers with tutor support</b> during the semester as best examples of their progress and 200-word reflection on the items*</p> <p><b>Or 2 items of work and</b></p> <p><b>A mid semester assessment:</b> case study, reflective note, quiz.</p> <p>* 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</p>
WEIGHT	<p><b>Overall weighting of project = 30%</b></p> <p><b>Weighting of individual parts of project out of 100</b></p> <p>4. Introduction – 10</p> <p>5. Methodology – 20</p> <p>6. Substantive section – 40</p> <p>7. Conclusion – 30</p>	<p><b>Overall weighting of project = 30%</b></p> <p><b>Weighting of individual parts of portfolio out of 100</b></p> <p>i(a). Each of the three (3) items selected by the student teacher is 30 % (90%).</p> <p>i(b) Presentation and organisation of portfolio 10%. OR</p> <p>ii(a). Each of the two (2) items selected by the student teacher is 30 % (60%).</p> <p>ii(b)Mid semester assessment 30%</p> <p>ii(c)Presentation and organisation of portfolio 10%</p>

<b>EXAM</b>	<b>End of semester Exam, weight 40%. To assess:</b> 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 21 <sup>st</sup> C skills in teaching and learning
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