

# Four-Year B.Ed. Course Manual

# Multimedia Development and Use for Early Grade Classrooms









**GOVERNMENT OF GHANA** 









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## **FOREWORD**

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

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

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

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

Professor Mohammed Salifu Director General, Ghana Tertiary Education Commission

## **ACKNOWLEDGEMENTS**

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

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

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

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

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

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

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

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## INTRODUCTION TO COURSE MANUALS

Welcome to this B.Ed. Course manual.

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

## The manuals serve the following purposes:

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

## Specifically, they also:

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

## Who are course manuals for:

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

## **USING THIS MANUAL**

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

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

My teaching philosophy is
In view of this philosophy, I will facilitate this course by/through

## **Course Manual Writing Format**

### **Course Information**

#### **Title Page**

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

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

# Course Details Course name Multimedia Development and use for early grade schools Pre-requisite Course Level 200 Course Code Value Credit Value

Table of contents (To be provided)

## **Goal for the Subject or Learning Area**

The goal of pedagogic studies is to equip student teachers with the foundation of the teaching profession by providing requisite instructional competencies, passion, commitment and positive attitude that ensures effective learning in diverse contexts.

### **Key contextual factors**

The use of varying learning resources in stimulating learning at early gradeschools is critical to any learning situation especially in this technologically-driven era. However, in most early gradeschools in Ghana, some teachers do not have equal access to adequate teaching and learning resources in teaching at the early grade school level due to resource constraints. The need for teachers to be resourceful becomes imperative if they are to meet the ever-changing educational needs of learners. Knowledge and skills required to identify, select and utilise multimedia resources for effective teaching and learning become one of the core competencies that is required of any 21st century teacher. This course is expected to provide knowledge and skills for developing and using low cost instructional resources available in the immediate environment and communities, in which early grade school teachers teach, to facilitate learning among early grade school learners.

## **Course Description**

The course is structured to expose early grade student teachers to the concept and nature of multi-media development and educational technology. Student teachers are guided to examine some constructivist theories and principles of learning suitable for early grade school learners. The course further focuses on various types of instructional media; how to develop, adapt learning materials to suit diverse learners, develop adaptive and assistive technologies for learners with SEN. Student teachers will also be guided to examine ways of evaluating, auditing and storing learning resources developed. Among others, the course will be delivered through demonstrations, projects, presentations, gallery work and peer assessment. Similarly, diverse methods including projects, gallery work and illustrative presentations would be used to assess student teachers through the three assessment components. It is expected that this would enable them use various criteria in selecting materials and also apply principles in developing and using varying multimedia and low-cost learning resources in facilitating and stimulating learning among differently abled learners in inclusive and multi-grade classrooms to improve learning. It will also equip student teachers of middle early grade learners with skills to manage transition from the Upper Early grade stage through to JHS (NTS 1a, 3g, 3j, 3f; NTECF, p. 45)

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

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

**Critical thinking** is developed in student teachers when they express their conceptions, misconceptions and biases towards the use of various multimedia resources.

Collaboration is fostered through assigning group projects and presentation of various topics across units.

**Communicative skills** of student teacher would be enhanced through group discussions, presentations, co-planning and coteaching

**Personal development** would be fostered through individual and group presentation, examining personal prejudices for some multimedia resources for teaching.

**Respect for diversity** would be engendered in student teachers by using various criteria of group formation.

**Commitment and passion for teaching** would be developed when student teachers develop various multimedia resources for teaching.

**Creativity:** This would be enhanced by creating or developing different multimedia resources to support the learning of learners with diverse characteristics.

Course Learning Outcomes		Learning Indicators			
Demonstrate a clear understate concepts of multimedia, educe instructional technology and use low-cost materials. They explain the importance and clear multimedia resources to address barriers to learning (NTS 3m).	ational technology and how to develop and should also be able to hallenges of using ess misconceptions,	Distinguish among the concepts of multimedia, educational technology and instructional technology     Identify some misconceptions and barriers to developing and using multimedia materials to support learning and explain how to address them through poster presentations.			
Exhibit an understanding and constructivist theories and thin in the use of learning materia	application of the e principles of learning	<ul> <li>Discuss the relevance of the use of learning materials in</li> <li>Apply the principles of learning resources in diverse learning</li> </ul>	ning in the use of learning		
Demonstrate knowledge and elements and principles of creusing different media product low/no-cost materials and the respect to SEN/gender suitab effective communication and grade schools (NTS 3m).      Demonstrate an understanding the use of technology (compucreating communication, and applications (NTS 3m).	eating visual designs tion techniques with eir evaluation with eility in order to ensure interaction in early	<ul> <li>Develop a learning material/model for learning any concept in a specific subject area by applying the basic elements and principles of visual design using imitative media production technique.</li> <li>Develop a learning material/model for learning any concept in a specific subject area by applying the basic elements and principles of visual design using adaptive media production technique.</li> <li>Develop a learning material/model for learning any concept in a specific subject area by applying the basic elements and principles of visual design using creative media production technique.</li> <li>Apply the principles of effective communication and deal with barriers that inhibit communication during interactions in early grade schools</li> <li>Conduct SEN/gender evaluation and audit of learning resources and create various appropriate ways of storing them.</li> <li>Discuss the relevance of the use of computers and handheld mobile devices in developing communication, and teaching and learning applications.</li> <li>Use computers or handheld devices in developing</li> </ul>			
		applications for communic colleagues and creating lea			
Course Content Unit/ Week	Торіс	Sub-topic if any)	Teaching and learning activity to achieve the learning outcomes		
1 CLO1	Nature of multimedia use in learning and conceptual issues	1.1 Conceptions, misconceptions and barriers to developing multimedia resources and use; 1.2 The concept multimedia, educational technology and instructional technology; 1.3 technology in education and technology of education; 1.4 history of educational technology	1. Use pyramid discussions with mixed ability/gender based pairings for misconceptions/barriers for using multimedia resources;  2. tutor led discussions on conceptual issues;  3. using power point to map or model the development of educational technology  4. Planning for application		
2 CLO1	Instructional media production	2.1 The concept of instructional media; 2.2 Types of instructional media; Characteristics of media; 2.3 Edgar Dale's "Cone of Experience";	1. Use     animations/pictures on     power point to stimulate     discussion on types and     characteristics;     2. mixed ability/gender     based group discussion		

	,		
3 CLO 2	Theories and principles of learning and instruction	2.4 Classification of instructional media; 2.5 Techniques of instructional media production  4.1 Concept of learning; principles of learning; 4.2 Constructivist theories (e.g. Vygotsky and Piaget)	and project on the techniques of media production 3. planning for application  1. Student led discussion and panel discussion on the relevance of constructivist theories for multimedia use; 2. Using cases/ scenarios and concept mapping for the application of principles of
4	Instructional visual design and communication	<ul> <li>4.1 Basic elements of visual design;</li> <li>4.2 Principles for creating visual design;</li> <li>4.3 principles and barriers of communication;</li> <li>4.4 Instructional design models (only Dick &amp; Carey's model;</li> <li>4.5 ADDIE model)</li> </ul>	learning in practice.  1. Student led discussion with power point presentation on basic elements and principles of visual design;  2. Develop models on power point for discussion on designing models  3. Planning for ap[plication in practice
5	Models and material adaptation for inclusive classrooms and their uses	<ul> <li>5.1 Types of models (solid, cross section, construction and working models);</li> <li>5.2 Diorama and puppets;</li> <li>5.3 Ways of developing learning materials using low/no cost resources;</li> <li>5.4 Criteria for selecting materials;</li> <li>5.5 Factors behind ineffective materials; Adaptive and Assistive Technologies (AATs) for SEN</li> </ul>	<ol> <li>Tutor led discussion on types of models and uses animations/visuals on power point;</li> <li>Individual and group project on developing materials/models for teaching specific concepts with commentary;</li> <li>Tutor led discussion on AATs (co-teach with SEN specialist)</li> </ol>
6	Handheld technologies (mobile and wireless learning)	6.1 The concept handheld technology; 6.2 Properties and relevance; 6.3 Communication and collaborating applications, and teaching and learning applications.	<ol> <li>Tutor led discussion on use of handheld devices, properties and relevance;</li> <li>Demonstration and group project on creating collaborating and teaching and learning applications.</li> </ol>
Teaching and Learning Strategies	Storage and evaluation/audit of multimedia learning resources	<ul><li>7.1 Need for storage of resources;</li><li>7.2 Ways of storing types of resources;</li><li>7.3 SEN and gender audit/evaluation of resources using checklists</li></ul>	<ol> <li>Group discussion on ways of storing resources;</li> <li>Audio-visual and tactile analysis of how multimedia resources are stored.</li> <li>Tutor led discussion on criteria for evaluating resource suitable for learners with diverse needs.</li> </ol>

## **Teaching and Learning Strategies**

- Concept cartoons and concept maps
- Cooperative learning
- Individual and group presentations
- Writing of reflective notes
- Think-pair-share, debates
- Ishakawa or fishbone strategy

- Team teaching co-planning and co-teaching by tutors and lecturers with varying expertise
- Talk for learning approaches- always, sometimes, never true, convince yourself, convince a friend; pyramid discussion etc

## **Course Assessment Components**

### <sup>1</sup>Component 1: Subject Portfolio Assessment (30% overall score)

- Selected items of students work (3 of them -10% each) = 30%
- Midterm assessment = 20%
- Reflective Journal = 40%
- Organisation of the subject portfolio = 10% (how it is presented /organised)

#### NOTE

Summary of Assessment Method: i. mixed ability/ gender based group presentation on misconceptions/barriers and how to address them.

ii. group presentation on conceptual issues on multimedia development, constructivist theories and principles of learning.

Reflective and evaluative course journal and presentation

- a. The student teacher demonstrates beginning skills and techniques of evaluation, analysis and reflection to evidence their understanding of the NTS and achievement of the CLO.
- b. they reflect on what they have learnt from developing each item
- c. they discuss each of the items in the portfolio to demonstrate their growing skills, knowledge and understanding of the CLOs and the NTS.
- d. they identify their key strengths, areas for development and targets for their progress in the subject.

Assesses Learning Outcomes: All CLO

## <sup>2</sup>Component 2: Subject Project: (30% overall semester score)

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

## NOTE

Summary of Assessment Method: Individual mid semester project using imitative and adaptive production techniques and applying principles of design on media/model development using creative production technique; developing learning resources and applications using computer or handheld devices. All projects MUST come with commentaries of why, what, how it should be used, including an evaluation accessibility to target learners and how to store them. Some projects should be assessed by peers. (soft skills to be developed include: critical thinking, digital literacy, respect for diversity)

Assesses Learning Outcomes: CLO 3 and CLO 4

### Component 3: End of Semester Exams 40%

## NOTE

Summary of Assessment Method: End of Semester Examination on multimedia development, constructivist theories and principles of learning using imitative and adaptive production techniques and applying principles of design on media/model development using creative production technique; developing learning resources and applications using computer or handheld devices, communication (soft skills to be developed include: critical thinking, honesty)

Assesses Learning Outcomes: CLO 1,2, 3 and 4

## **Required Reading and Reference List**

Adeoye, B. F. (2015). Technology guide for teaching & learning. Ibadan-Nigeria: His Lineage Publishing House.

Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for effective teaching and learning. Winneba: University Press.

Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.

Transformaing Teacher Education and Learning (2017). Teaching and learning materials. Accra: Ministry of Education.

Driscoll, M.P. (2005). Psychology of learning for instruction. Boston: Pearson Education Inc.

Gagne, R.M. & Briggs L.J. (1979). *Principles of instructional design (2<sup>nd</sup> ed.)*. New York: Holt, Rinehalt, & Winston.

Gerlach, S. V., Ely, P. D., &Milnick, R. (1980). *Teaching and media: A systematic approach*. New Jersey: Englewood Cliffs. Heinich, R., Molenda, M., Russel, J. D., &Smaldino, E. S. (1996). *Instructional media and technologies for learning (5<sup>th</sup>ed)*. Prentice Hall.

Rowntree, D. (1982). Educational technology in curriculum development. London: Harper and Row.

Smaldino, S.E., Lowther, D.L., & Russell, D.J. (2008). Instructional technology and media for learning (9<sup>th</sup> ed.). Upper saddle

<sup>&</sup>lt;sup>1</sup>See rubrics on Subject Portfolio Assessment in Annex 6 of NTEAP

<sup>&</sup>lt;sup>2</sup>See rubrics on Subject Project Assessment in Annex 6 of NTEAP

River, NJ: EngleCliff Woods.

 $\hbox{T-tel (2016): Professional development guide for tutors on teaching and learning materials. Theme \, 5}$ 

Course related professional development for tutors/ lecturers
Using handheld technologies and mobile devices to create learning applications

Year of B.Ed.	2	Semester	2	Place of lesson in semester	<b>1</b> 2 3 4 5 6 7 8 9 10 11 12
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Title of Lesson	The nature and co	onceptions	of multim	edia develop	oment and use		Lesson Duration	3 Hours
Lesson description	The lesson will deal with varying conceptions and meaning of concepts related to the use of multimedia resources. The biases and prejudices of student teachers about the use of resources shall also be explored in order to identify ways of addressing them. The relevance for the use of multimedia resources in teaching, the challenges and how they can be addressed shall be examined.							
Previous student teacher knowledge, prior learning (assumed)  Possible barriers to	learnt form "inclu resources. Have a Supported teachi This first lesson in	Have knowledge, understanding and use various creative approaches and play as a pedagogy learnt form "inclusive school-based inquiry". The use of these strategies require the use various resources. Have also observed teachers use various teaching and learning resources during Supported teaching in Schools.  This first lesson introduces student teachers to the course learning outcomes and the 3 assessment components of the course.						
learning in the lesson Lesson Delivery – chosen to support student teachers in achieving the	Face-to-face [	Practical Activity	Work- Based Leaning	Seminars [ v ]	Independent Study [ V ]		ortunities	Practicum
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	E-learning opport and learning. Seminars: to gene tutor led on the u	Seminars: to generate group and individual creativity, discussion and reflection; student and/or tutor led on the use various learning resources.  Independent study: to enable student teachers to engage with relevant issues related to topic.						or teaching
Overarching outcome, what you want the student teachers to achieve, serves as basis for the learning outcomes. An expanded version of the description. Write in full aspects of the NTS addressed	Demonstrate a clear understanding among the concepts of multimedia, educational technology and instructional technology and how todevelop and use low-cost materials. They should also be able toexplain the importance and challenges of using multimedia resources to address misconceptions, barriers to learning(NTS 3m).						ould also be	
Learning Outcome for the lesson, picked and developed from the course specification     Learning indicators for each learning outcome	Learning Outcomes  Learning Indicators  Identify which c issues – core and transferable skill inclusivity, equit addressing diverwill these be addreveloped?					nd ills, ity and ersity. How		
	Demonstrate a cle understanding an concepts of multine ducational techn instructional tech how to develop an cost materials. The also be able to ex importance and cousing multimedia to address miscor barriers to learning	nong the media, sology and nology and use low-ney should plain the hallenges of resources neeptions,	cce ed in ed	stinguish ame oncepts of miducational te structional te structional te structional te struction of a using multisources in te struction of a triers/challe eveloping and ultimedia resaching and le	ultimedia, chnology and echnology. ing the developing timedia eaching. nges to d using sources in	•	presentation Digital liter the internet information to be discustoreativity a innovation about ways	tiquing and ons acy: Surfing at for relevant on themes ssed. and a thinking of appropriate

Topic Title: The nature and conceptions of multimedia development and use	Sub-topic	Stage/time	early grade schools and how they can be addressed.  Explain in writing some misconceptions about developing and using multimedia materials to support learning and explain how to address them.  Teaching and learning activities to depending on the delivery mode sucollaborative group work or indep	elected. Teacher-led
	Concepts of multimedia resources	40 minutes	Face-to-face Review RPK of student teachers through questioning. Let them identify some resources or materials they prepared in order to make the use of some games, songs and puzzles they designed to support identified learners with difficulties during STS in year 1 (PD theme 2, 5)  Face-to-face Guide student using questioning skills for them to guess the topic for discussion. Through lecturette link RPK to the use of multimedia resources. Guide student teachers to use their phones and tablets to search for meaning of concepts related to the topic:  Multimedia resources  Technology in education Educational technology Instructional technology Teaching and learning resources etc. Pyramid discussion can be employed for different pairs of students to work on a different concept and compare and contract findings as groups build up. Discuss meanings read out with students and assist them through questioning to establish relationships between concepts. (PD theme 2, 3). Guide students to present findings.	Face-to-face Provide relevant answers to questions by talking about the various projects they worked regarding the use of games, songs etc., and the material they used in developing them.  Face-to-face Listencarefully to questions and try to link RPK to topic to be discussed.  Start working in pairs and look for the meaning of the different concepts assigned to each pair and compare meanings as groups build up.  Present meanings of concepts to whole class and establish linkages.  Write down meanings of the different concepts.
	Need for the use of technology resource development and use, biases and misconceptions	30 minutes	Independent study Let students work in pairs to discuss the need for technology in materials development and their use and the misconceptions and the biases people/teachers have and how this can be address drawing on their experiences during STS.	Independent study Work in pairs, explore their experiences during STS and randomly present findings for discussion. Organise presentation using concept maps or webs

	Γ	Γ	T	<u></u>		
			Randomly select pairs of			
			students to present findings for			
			discussion on the three areas (in			
			bold above).			
			Use concept maps/webs to			
			organize thoughts for students to	1		
	Ctth	41	copy.	to do a sud advidu		
	Strengths and	1hour 30	Independent study	Independent study		
	challenges for using	minutes	Guide students to explore their experiences during STS. Put them	Work in various small groups to discuss the benefits and		
	multimedia		into small groups of 4 and 5	challenges of using resources		
	resources for		members to discuss strengths,	as observed during STS		
	teaching and		challenges and how they can be	Using digital devices to also		
	learning in		addressed. These may be put	search for information and		
	early grade		under these suggested headings:	prepare scripts for		
	schools.		Strengths/benefits: for teachers,	presentation.		
			fore learners, instructional			
			management etc.			
			Challenges (sources): teacher,			
			learners, institution, community etc.			
			C.C.			
			Guide students to prepare			
			manuscript for a brief			
			presentation.			
			Summarize lesson after			
			presentations using questions			
			and give a reading assignment.			
			(PD 2, 4)			
			Reading Assignment	Dead to a income of fee		
			Direct student teachers to read	Read topics assigned for		
			on the history of educational technology; types/ categories of	lesson 2 and make your own notes.		
			resources, their general	notes.		
			characteristics of multimedia			
			resources (MRs) and their use in			
			preparation for the next lesson			
Lesson assessments –	Formative Assess	ment:	•			
evaluation of learning: of,	<ul> <li>Students</li> </ul>	s prepare a ref	flective note on the relevance of the	use of multimedia resources in		
for and as learning within	_	, ,	ncountered in their use as observed	during STS and how teachers		
the lesson		ve addressed				
Instructional Resources			Education and Learning (2016). Teach			
	Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org)     Mobile phones					
	Laptops					
	Laptops     Videos from YouTube					
Required Text (core)			gy guide for teaching & learning. Ibac	dan-Nigeria: His Lineage		
	Adeoye, B. F. (2015). <i>Technology guide for teaching &amp; learning</i> . Ibadan-Nigeria: His Lineage Publishing House.					
	Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for					
	effective teaching and learning. Winneba:University Press.					
	Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.					
Additional Reading List	rmaing Teacher Ed	lucation and L	earning (2017). Teaching and learnin	a materials Accra: Ministry of		
Additional Reduing List	Education.	acation and L	carring (2017). reaching and rearmin	g materials. Accid. Willistry Of		
		nda, M., Russe	el, J. D., &Smaldino, E. S. (1996). <i>Insti</i>	ructional media and		
			(5 <sup>th</sup> ed). Prentice Hall.			
			ology in curriculum development. Lor			
CPD needs	PD Theme 1(crea	tive approach	es) and Theme 5 (teaching and learn	ing materials)		

Year of B.Ed. 2 Semester 2	Place of lesson in semester	1 <b>2</b> 3 4 5 6 7 8 9 10 11 12
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Title of Lesson	Instruction	onal media I	Production	n		Lesson D	uration	3 Ho	urs
Lesson description		Lesson will focus on the types and characteristics of multimedia resources. The specific features							
Previous student teacher knowledge, prior learning (assumed)	Have an u inhibiting styles und during ST	of the various types will be explored and their used discussed using various modes of delivery.  Have an understanding of what multimedia resources are, their importance and challenges inhibiting their use in educational settings. They have also been exposed to different learning styles under psychological basis of learning and have observed resources being used for teaching during STS							
Possible barriers to learning in the lesson	Biases to	wards the u	se of cert	ain resources fo	r teachi	ng and le	arning.		
Lesson Delivery – chosen to support student teachers in achieving the outcomes	Face- to-face [ V ]	Practica I Activity [   ]	Work- Based Leaning	Seminars [ $\forall$ ]	Indepe Study [ \forall ]	endent	E-learning opportuni		Practicum
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	E-learning and learn Seminars tutor led Independ	g opportuning.  to generation the use vicents tudy:	ties – Vid te group various le to enable	urette, think, pa eos from YouTu and individual co arning resource student teache roups or individ	be on vareativity s. ers to en	arious kin , discussion gage with	ds of resour on and refle relevant iss	ces us ction; sues re	ed for teaching student and/or
Overarching outcome, what you want the student teachers to achieve, serves as basis for the learning outcomes. An expanded version of the description. Write in full aspects of the NTS addressed	PD theme 1(Creative approaches) and theme 5 (teaching and learning materials)  Demonstrate a clearknowledge of the types, general and specific characteristics of the types of multimedia resources (NTS 3c, j).							of the types of	
Learning Outcome for the lesson, picked and developed from the course specification     Learning indicators for	Learning	Outcomes		Learning Indica	tors	core inclus diver	and transfe sivity, equit	rable s y and	
each learning outcome	knowledg types, ger specific cl of the typ	neral and haracteristion les of lia resource	ss •	Analyse Edgar D cone of experients relevance to and learning.  Identify the type multimedia reso based on their characteristics.  Discuss the import the use of eact types of resource teaching and leace early grade school	nce and teaching es of ources ortance ch of the es for arning in	•	Creativity a Creating TL learning Digital liter mobile dev information Communica critiquing a Equity and various stra students co	Ms fo acy: unices to nation s ation s inclus ategies	r teaching and sing their o search for skills: through esentations ivity: using s in grouping

Topic title: Types and	Cub Acreia	Stano /time	Teaching and learning activities to	
characteristics of multimedia resources	Sub-topic	Stage/time	depending on the delivery mode se collaborative group work or indepe	
maisimeala resources			Teacher Activity	Student Activity
	Introduction	20 minutes	Face-to-face Review RPK based on students' knowledge of the meaning, strengths and challenges instructional media (PD theme 2)	
	Edgar Dale's cone of experience	50 minutes	Independent study Show a short video on Edgar Dale's cone of experience. Guide student teachers to analyse and discuss the relevance of using multimedia resources that appeals to multiple senses in teaching	Independent study Watch video and do an analysis of the relevance of using multimedia resources for teaching and learning drawing on their experiences from STS
	Types and characteristic s of resources		Put student teachers into smaller groups. Identify group leaders to select a type on behalf of the group for them to search on and present in class using power point and show illustrations and animations.  Groups should pick anyone of the following:  Visual materials, audio materials, and audio visual material  Guide groups examine their	Work in groups on the type chosen by the group. Prepare power point presentation with relevant illustrations and animations and select an 'expert' to present on behalf of the group.
			experiences during STS and focus on type, purpose, characteristics and importance for teaching and learning using a selected type of resource  Group should select an 'expert' to do the presentation on their behalf (PD theme 2, 4)	Observe, listen and ask questions after presentations. Peer assess and score presentation and quality of slides.
		60 hour	Independent study In their small groups, guide student teachers to select a particular type of media from a category e.g., radio, television, computer etc. and explain WHAT and HOW they can be used in teaching and learning. Groups may be guided to present to whole class or do jigsaw/cross group presentations (PD theme 2, 3)	Independent study Select a particular type of media and explain what and how they can be used in teaching. Various groups present their work
	Criteria for selecting and using multimedia resources	40 minutes	Face-to-face Use lecturette and questioning to stimulate discussion on criteria for selecting and using resources (PD theme 2)	Face-to-face Listen and answer questions and use their mobile phones to search for information online
		10 minutes	Summarise lesson noting key issues raised. Give a reading assignment on topic to be treated in lesson 3: Theories and principles of learning.	Take note of key issues raised and topic to be treated in lesson 3.

Lesson assessments –	Formative Assessment:
evaluation of learning: of,	Power point presentation on types, characteristics and importance of selected resource for
for and as learning within	teaching and learning. Peers observe, comment and score.
the lesson	
Instructional Resources	Transforming Teacher Education and Learning (2016). Teaching and learning materials:
	Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org)
	<ul> <li>Mobile phones, Laptops, Videos from YouTube, Animations and pictures.</li> </ul>
Required Text (core)	Adeoye, B. F. (2015). Technology guide for teaching & learning. Ibadan-Nigeria: His Lineage
	Publishing House.
	Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for
	effective teaching and learning. Winneba:University Press.
	Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.
Additional Reading List	rming Teacher Education and Learning (2017). Teaching and learning materials. Accra: Ministry of
	Education.
	Heinich, R., Molenda, M., Russel, J. D., &Smaldino, E. S. (1996). Instructional media and
	technologies for learning (5 <sup>th</sup> ed). Prentice Hall.
	ee, D. (1982). Educational technology in curriculum development. London: Harper and Row
CPD needs	PD Theme 1(creative approaches) and Theme 5 (teaching and learning materials)

Year of B.Ed.	2	Semester	2	Place of lesson in semester	1 2 <b>3</b> 4 5 6 7 8 9 10 11 12
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Title of L	Lesson	Theories	and princip	les of lear	ning and instru	ction	Lesson Duration	3 Hours
Previous knowled (assume	s student teacher dge, prior learning ed)	Lesson is designed to expose student teachers to the constructivist theories and princip of learning. Student teachers will examine how the theories and principles influence the development and use of multimedia resources for teaching and learning of early grades school pupils with diverse needs.  Student teachers have observed the development and use of some teaching and learning resources by teachers during supported teaching in schools and have also read relevant topics related to the lesson.  May have little knowledge and understanding of topic to be treated.						uence the ly grade nd learning
the lesso			e class sizes.	Ü	J	•		
Lesson D	Delivery – chosen to	Face-	Practical	Work-	Seminars	Independent	E-learning	Practicum
	student teachers in	to-face	Activity	Based	[ v ]	Study	opportunities	
	g the outcomes	[ \dagger ]	[ <b>v</b> ]	Leaning		[ v ]	[ v]	
	Delivery – main mode of			sion, lectu	rette, think, pa	ir share should	be used in facilita	ating lessons.
	chosen to support						nds of resources	
-	teachers in achieving		and learning					
	ning outcomes.	Ū	•	-	nd individual cr	eativity, discuss	ion and reflection	n; student
			_		ous learning re			.,
					_		h relevant issues	related to
		topic.	aciic stady.	to chable .	reacht teacher	3 to engage wit	in relevant issues	related to
			activity: wo	rking in gr	nuns or individu	ally on projects	for presentation	•
Overarch	hing outcome, what							
	IIIIE OULCOIIIE. WIIAL	Exhibit knowledge, understanding and application of the theories and the principles of						
	_	inctruction					•	•
•	nt the student teachers						of multimedia re	•
to achiev	nt the student teachers ve, serves as basis for	instruction <b>2e</b> ).					•	•
to achiev	nt the student teachers ve, serves as basis for ning outcomes. An						•	•
to achieve the learne expande	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the						•	•
to achieve the learnexpande descripti	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the ion.						•	•
to achieve the learn expande description	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the ion. full aspects of the NTS						•	•
to achieve the learnexpande descripti Write in addresse	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the ion. full aspects of the NTS	<b>2</b> e).	on and learn	ing. As we	l as the develop	oment and use o	of multimedia re	sources ( <b>NTS</b>
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to achieve the learn expande descripti Write in addresse   • Lear lesson development   • Lear Lear Lear Lear Lear Lear Lear Lear	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the ion. full aspects of the NTS ed rning Outcome for the on, picked and eloped from the course cification rning indicators for	Learning  Exhibit a	Outcomes	ing. As we	I as the develop	Identify whi and transfe and address be addresse	ich cross cutting rable skills, inclusing diversity. Hoed or developed?	issues – core sivity, equity w will these
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to achieve the learn expande descripti Write in addresse expande development of the control of t	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the ion. full aspects of the NTS ed rning Outcome for the on, picked and eloped from the course cification rning indicators for	Learning  Exhibit a understa application	Outcomes  n inding and on of the	ing. As we	I as the develop	Identify whi and transfe and address be addresse  • Cor crit • Dig	ich cross cutting rable skills, inclusing diversity. Hoed or developed? mmunication skil tiquing and presegital literacy: Surf	issues – core sivity, equity bw will these ls: through entations ing the
to achieve the learn expande descripti Write in addresse   • Lear lesson development   • Lear Lear Lear Lear Lear Lear Lear Lear	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the ion. full aspects of the NTS ed rning Outcome for the on, picked and eloped from the course cification rning indicators for	Learning  Exhibit a understa application	Outcomes  nunding and	ing. As we	Learning Indicators Discuss the relevance of the	Identify whi and transfe and address be addresse  • Cor crit • Dig	ich cross cutting rable skills, inclu sing diversity. Ho ed or developed? mmunication skil tiquing and prese	issues – core sivity, equity by will these lls: through entations ing the
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to achieve the learn expande descripti Write in addresse  Lear lesson development  Lear Lear Lear Lear Lear Lear Lear Lear	nt the student teachers ve, serves as basis for ning outcomes. An ed version of the ion. full aspects of the NTS ed rning Outcome for the on, picked and eloped from the course cification rning indicators for	Exhibit a understa application construction and the plearning developr of multin	n Inding and on of the tivist theorie orinciples of in the ment and use nedia	es •	Learning Indicators Discuss the relevance of the constructivist theories to development and use of earning materials in early grade schools. Apply the orinciples of earning in the use of learning	Identify whi and transfe and address be addresse • Concrit • Dig into on • Per pre arg of i • Equivar stu bacabi • Crit skill	ich cross cutting rable skills, inclusing diversity. Hoed or developed? mmunication skiltiquing and presegital literacy: Surfernet for relevanthemes to be disposed and developments in supports of the considering and inclusivity and inclus	issues – core sivity, equity w will these ls: through entations ing the t information cussed. ent: Through eveloping of ort of the use ching. ey: using g rouping g their eristics and velops this cheories and

Topic Title: Theories and principles of learning and instruction	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.			
			Teacher Activity	Student Activity		
	Introduction	30 minutes	Face-to-face Review RPK through questioning. Ask student teacher to share their observations on what and how early grade school teachers use various resources in teaching. (PD theme 2)	Face-to-face Provide relevant answers by sharing observations during STS with class.		
		60 minutes	Lecturette and student-led discussion Select and guide two student teachers to lead discussion on the Vygotsky and Piaget's perspectives on constructivist theories Guide them to lead class to discuss their relevance for multimedia development and use.	Participate in a student- led discussion on relevance of theories to use of resources.		
			Give student teachers an assignment on comparing and contrasting the perspectives of the two proponents. (PD theme 2)	Write down the take home assignment. Compare and contrast constructivism from the perspectives of the two proponents.		
			Guide students to discuss the difference between constructivism and traditional teaching practices.	Discuss the differences and make notes.		
		60 minutes	Face-to-face& Independent study Lead the discussion on the application of principles of learning using cases/ scenarios and concept mapping. (PD theme 2)	Face-to-face& independent study Participate in discussion by answering relevant questions and searching for information online using their mobile phones.		
		30 minutes	Guide student teachers to summarise lesson by identifying key points. Ask student teachers to read relevant topics for next lesson.	Answer questions and note down key points from the lesson. Take note of topic for lesson 4 and read on it.		
Lesson assessments – evaluation of learning: of, for and as learning within the lesson		signment on comp	paring and contrasting Vygotsky attions for development and use of			
Instructional Resources	materi (www.	als: Professional a t-tel.org) phones	ducation and Learning (2016). <i>Te</i> levelopment guide for tutors. Acc			

	Videos from YouTube
Required Text (core)	Adeoye, B. F. (2015). Technology guide for teaching & learning. Ibadan-Nigeria: His Lineage Publishing House.  Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for effective teaching and learning. Winneba:University Press.  Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.
Additional Reading List	Transforming Teacher Education and Learning (2017). <i>Teaching and learning materials</i> .  Accra: Ministry of Education.  Heinich, R., Molenda, M., Russel, J. D., &Smaldino, E. S. (1996). <i>Instructional media and technologies for learning (5<sup>th</sup>ed)</i> . Prentice Hall.  Rowntree, D. (1982). <i>Educational technology in curriculum development</i> . London: Harper and Row
CPD needs	Constructivism and it application to the use of resources

Year of B.Ed. 2 Semester	2	Place of lesson in semester	123 <b>4</b> 56789101112
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Title of Lesson	Instructi	ional and vis	ual des	gn		Lesson	3 Hours		
						Duration			
Lesson description		The lesson will focus on basic elements of visual design and the principles for creating visual							
	_						pected to apply the		
		various principles in developing teaching learning resources for learners with diverse needs in							
		early grade classrooms.							
Previous student teacher		Student have knowledge and understanding of theories and principles of learning and observed teacher developing and using TLMs during supported teaching in schools.							
knowledge, prior learning	teacher	developing a	na usin	g TLMs during si	upported teachi	ng in schools.			
(assumed)	D:				C				
Possible barriers to	Biases to	wards the us	se or ce	rtain resources	for teaching				
learning in the lesson	Госо	Dunatical	\A/a.d.	Canainana	In donound out	E leaveire	Due et euro		
Lesson Delivery – chosen to support student	Face- to-face	Practical Activity	Work- Based		Independent Study	E-learning opportunities	Practicum		
		[ \[ \]			[V]				
teachers in achieving the outcomes	[√]	[ , ]	Leanii	ig	[ V ]	[ V ]			
Lesson Delivery – main	Eaco to t	faco – Discus	cion lo	cturatta think i	l zair charo choule	l d be used in facilita	ting lossons		
mode of delivery chosen						kinds of resources ι			
to support student	and lear		iics — V	acos nom rour	ane on various i	ands of resources (	aca for teaching		
teachers in achieving the		-	e graii	and individual	creativity discus	ssion and reflection	· student and/or		
learning outcomes.		_	-	learning resourc		ssion and reneetion	i, stadent ana, or		
rearring outcomes.						ith relevant issues	related to topic.		
						ts for presentation.			
Overarching outcome,						sic elements of visu			
what you want the			-	design. NTS 3m					
student teachers to	' '	·		J					
achieve, serves as basis for									
the learning outcomes. An									
expanded version of the									
description.									
Write in full aspects of the									
NTS addressed									
• Learning Outcome for	Learning	Outcomes		Learning Indi		Identify which cros	_		
the lesson, picked and						core and transferal			
developed from the						inclusivity, equity a			
course specification						diversity. How will			
<ul> <li>Learning indicators for</li> </ul>						addressed or devel			
each learning	Demons		•	Apply basic el			on skills: through		
outcome	knowled	-		principles of v	•		presentations		
		anding of the		to develop ap		<ul> <li>Digital literacy</li> </ul>	-		
		asic elements		teaching and			levant information		
		design and t		materials for		on themes to			
		es for creating		early grade so	choois.		lopment: Through		
	visual de	esign. NTS 3m	'				and developing of		
						-	support of the use		
						of resources for			
						Equity and inc			
							gies in grouping		
						students cons	-		
						background cl abilities.	naracteristics and		

Topic Title: Instructional and visual design	Sub-topic	Stage/time		o achieve outcomes depending on er-led collaborative group work or		
			Teacher Activity	Student Activity		
	Introduction	20 minutes	Face-to-face Review RPK through questioning the nature of some of the TLMs they have observed teachers use in class during supported teaching in schools. (PD theme 2)			
	Basic elements of visual design	50 minutes	Face-to-face&E-learning Use videos and animations on slides to initiate discussions on the basic elements of visual design. Guide student teachers to illustrate how the elements can be used in generating various images (PD theme 2, 5)	Face-to-face &E-learning Watch/observe, analyse and answer questions. Use writing/drawing materialsto illustrate how the elements can be applied.		
	Principles of visual design	50 minutes	Face-to-face &E-learning Use videos and animations on slides to initiate discussions on the principles of visual design. Guide student teachers to illustrate how the principles can be used in generating various images (PD theme 2, 5)	Face-to-face &E-learning Watch/observe, analyse and answer questions. Use writing/drawing materials to illustrate how the principles can be applied.		
		60 minutes	Independent study Assign student teachers a task. Guide them to combine both the elements and principles in sketching/drawing various simple images for display and peer review (PD theme 2, 5)	Independent study Apply the elements and principles in drawing/sketching images for display and peer review.		
Lesson assessments  - evaluation of learning: of, for and as learning within the lesson	In-lesson Assess Peers assess and Weighting: 30%		ayed images of colleagues and score	– you will need criteria.		
Instructional Resources	<ul> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials:         Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org)     </li> <li>Mobile phones</li> <li>Laptops</li> <li>Videos from YouTube</li> <li>Drawing pads, pencils, pens</li> <li>Cardboards</li> <li>Resource person with expertise in art</li> </ul>					
Required Text (core)	<ul> <li>Resource person with expertise in art</li> <li>Adeoye, B. F. (2015). Technology guide for teaching &amp; learning. Ibadan-Nigeria: His Lineage Publishing</li></ul>					
Additional Reading List	Education. Heinich, R., Mole learning (S	enda, M., Russ 5 <sup>th</sup> ed). Prentice		ructional media and technologies for		
CPD needs			ciples in developing teaching and lea			

Year of B.Ed.	2 Semester	f B.Ed. 2 Semester	Place of lesson in semester	1234 <b>5</b> 6789101112
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Title of Lesson	Concept and princ	iples of effe	ctive com	munication			Lesson Duration	3 Hours
Lesson description	The lesson is designed to expose student teachers to the concept and principles of effective communication. The model of communication, barriers to communication in class and how to address them shall also be discussed. Lesson shall be delivered using various modes of delivery							
Previous student teacher knowledge, prior learning (assumed)  Possible barriers to learning in the lesson  Lesson Delivery – chosen to support student teachers in achieving the outcomes  Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.  Overarching outcome, what you want the student teachers to achieve, serves as basis for the learning	in order to make it interactive.  Knowledge and understanding of the use of audio and audio-visual resources and how they a used for instructional purposes. The have observed teachers also observed teachers teaching during STS and are also communicating with pupils by co-planning and co-teaching.  Students have not started teaching full classes and may therefore have difficulties in conceptualising how to effectively communicate in class.							Practicum  ssons. inciples of ent and/or d to topic.
outcomes. An expanded version of the description. Write in full aspects of the NTS addressed  • Learning Outcome for the lesson, picked and developed from the course specification  • Learning indicators for each learning outcome	tr in ac				cut tra inc add wil	entify which tting issues - insferable sk lusivity, equ dressing div Il these be a veloped?	- core and cills, lity and	
	Demonstrate know understanding of a principles of comm and how to deal w barriers of commu early grade classro	pplication of nunication ith the nication in	of	teaching ar arly grade sc iscuss the se (Cs) for ensu ommunication rade schools	ements of on with regard and learning in hools. ven principles ring effective on in early . ers to effective on in early and how to	•	Communion skills: through presentation bigital liter Surfing the for releval information themes to discussed. Personal developm Through presentation developing the skills of the skills	ugh and ons racy: e internet nt on on be  ent: on and g of s in support of

				Equity and inclusivity:
				using various strategies in grouping
				students considering their background
				characteristics and abilities.
Topic Title: The concept and principles of effective	Sub-topic	Stage/time	Teaching and learning activities depending on the delivery mode	selected. Teacher-led
communication			collaborative group work or inde	Student Activity
	Introduction	10 minutes	Face-to-face	Listen attentively and
			Through questioning review student teachers RPK and link it to the topic for discussion.	answer questions related to RPK.
			(PD theme 2)	
	The concept 'communication'	20 minutes	Face-to-face Guide pupils to think-pair and share the meaning of communication. Let them use their phones to search for	Face-to-face Think-pair and share the meaning of communication with peers. Use phones to search for
			various meanings and definitions and share with class. Guide to them to explain communication within the	meaning and share with whole class. Explain the meaning in the context of teaching and learning.
			context of teaching and	· ·
	Elements of	40 minutes	learning (PD theme 2, 3, 5) Independent study and E-	Independent study and E-
	communication		learning Put student teachers in small groups to search for the elements of communication using their phones and discuss in their groups.	learning Work in small groups on the elements of communication and present to class for discussion  Observe communication
			Guide selected groups to share their findings with the whole class for discussion.	model, identify elements and how they interact and explain
			Project a model on slides illustrating the various elements and their interactions (Encoder, channel, decoding etc)	Explain who/what the elements represent in the teaching and learning context.
			Guide student teachers to examine and identify who/what these elements represent in the classroom context, for example Encoderteacher. (PD theme 2, 3, 4, 5)	
	Principles for effective communication	50 minutes	Independent study Put student teachers into seven groups and share the seven principles amongst them. Guide each group to examine the meaning of the principles and how it applies in the classroom context.	Independent study and E- learning Work in various groups on a principle and share information with other groups through jigsaw or cross group presentations.
				Each group presents to

	Barriers to communication and how to address them	60 minutes	Guide pupils to do jigsaw or cross group presentations. Let groups present to whole class and use concept maps to organize information provided. (PD theme 2, 3, 4, 5)  Face-to-face & independent study Through questioning and brainstorming, guide student teachers to identify barriers to communication in the classroom and during teaching and learning.	whole class for further discussion.  Face-to-face & independent study Brainstorm on barriers to communication in class by using your phones to search.		
			Put student teachers into small groups consistent with the number of barriers identified. Guide them to discuss what the barriers are and how they can be addressed by the teacher to ensure effective teaching and learning.	Work in groups on barriers assigned and how they can be addressed.		
			Guide student teachers to do a jigsaw or cross group presentation. (PD theme 2, 3, 4, 5)	Present findings to other groups for discussion.		
			Guide groups to present to whole class briefly on the barrier and how to deal/address it as a teacher. (PD theme 2)			
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	Formative Assessr Topic treated shou		end of semester examination.			
Instructional Resources	<ul> <li>TESSA (2016). Inclusive education tool kit. Walton Hall: United Kingdom</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org)</li> <li>Transforming Teacher Education and Learning (2016). Talk for learning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Group work: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Videos from YouTube</li> <li>Mobile phones</li> </ul>					
Required Text (core)	<ul> <li>Laptops</li> <li>Adeoye, B. F. (2015). Technology guide for teaching &amp; learning. Ibadan-Nigeria: His Lineage Publishing House.</li> <li>Amoah, S. A., Laryea, P., &amp; Amoako, B. M. (2016). Fundamentals of educational technology for effective teaching and learning. Winneba: University Press.</li> <li>Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.</li> </ul>					
Additional Reading List	rmaing Teacher Education and Learning (2017). <i>Teaching and learning materials</i> . Accra: Ministry of Education.  Heinich, R., Molenda, M., Russel, J. D., &Smaldino, E. S. (1996). <i>Instructional media and technologies for learning (5<sup>th</sup>ed)</i> . Prentice Hall.  Rowntree, D. (1982). <i>Educational technology in curriculum development</i> . London: Harper and					

	Row
CPD needs	

Year of B.Ed.	2	Semester	2	Place of lesson in semester	12345 <b>6</b> 789101112
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Title of Lesson	Concept, Types, Characteristics and uses of community resources  Lesson Duration  3 Hou									
Lesson description	The lesson is designed to expose student teachers to the concept of community resources, the types and how they are used for instructional purposes. Lesson shall be delivered using various modes of delivery in order to make it interactive.									
Previous student teacher knowledge, prior learning (assumed)	Knowledge and understanding of the use of audio and audio-visual resources and how they are used for instructional purposes. The have observed teachers developing and using various materials from the community to teach during supported teaching in schools. They can also apply basic elements and principles in developing materials for teaching and learning									
Possible barriers to learning in the lesson		Biases towards the use of certain resources for teaching								
Lesson Delivery – chosen to support student teachers in achieving the outcomes	Face-to-face [ √ ]	Practical Activity [ V ]	Work- Based Leaning	Seminars [ \forall ]	Independent Study [ v ]	E-learning opportunities	Practicum			
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.  Overarching outcome, what you want the student teachers to achieve, serves as basis for the learning outcomes. An expanded version of the description.  Write in full aspects of the	E-learning oppo teaching and lea Seminars: to ge and/or tutor lea Independent st Practical activity	ortunities – Vi arning. enerate group d on the use v udy: to enab y: working in nowledge and	deos from o and indiv various lea le student groups or d understal	YouTube on idual creative ring resource teachers to endividually conding of how	various kinds ity, discussion ces. engage with re on projects for community re	ised in facilitating of resources used and reflection; store levant issues rela presentation.	for udent ted to topic.			
Learning Outcome for the lesson, picked and developed from the course specification     Learning indicators for each learning outcome	Learning Outco	mes	Lear	ning Indicato	issu skil add the	ntify which cross ues — core and tra ls, inclusivity, equinersing diversity. see be addressed on the loped?	nsferable lity and How will			
	Demonstrate kr and understand community reso be used for tead learning in dive contexts. (NTS 3	ling of how ources can ching and rse learning	Crea learn commoder in the commoder in th	gorise communces based acteristics.  te teaching a sing material munity resource earning material loped from munity resource used to teach concepts a grade school of the concepts and the concepts a grade school of the concepts and the concepts a grade school of the concepts and the concepts are the concepts and the concepts and the concepts are	nunity on their  and s from urces hing erials  urces ach at the	Communication through critiquin presentations Digital literacy: Sinternet for releinformation on the discussed. Creativity and in Using communit to develop TLMs Equity and incluivarious strategies grouping studen considering thei background chaind abilities.	Surfing the vant chemes to novation: ty resources sistivity: using estinates in			

Introduction   30 minutes   Face-to-face   Guide a student teacher in leading the class to review RPK on multimedia resources and the resources teachers use that have been observed during STS.   Face-to-face & student-led discussion   Guide selected expert student teacher to facilitate lesson by using questioning to explore student teachers' understandling of community resources. (PD theme 2, 4, 5) and types of TLMs:    Paper made TLMs   Practical work   Practical work   Practical work   Practical work   Practical work   Guide expert student teachers for information relative to questions asked.	Topic Title: Concept, Types, Characteristics and uses of	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led					
Introduction   30 minutes		Sub-topic	Stage/time						
Guide a student teacher in leading the class to review RPK on multimedia resources and the resources teachers use that have been observed during 5TS.  60 minutes	community resources								
leading the class to review RPK on multimedia resources and the resources teachers use that have been observed during STS.   60 minutes		Introduction	30 minutes	Face-to-face					
on multimedia resources and the resources and throw been observed during STS.  60 minutes				Guide a student teacher in	Provide relevant answers				
the resources teachers use that have been observed during STS.  60 minutes  60 minutes  60 minutes  Face-to-face & student-led discussion Guide selected expert student teacher to facilitate lesson by using questioning to explore student teachers' understanding of community resources. (Po theme 2, 4, 5) and types of TLMs:  Paper made TLMs Paper made TLMs Partical work Mork made TLMs Plastic made TLMs Plastic made TLMs Plastic made TLMs Practical work Guide expert student teacher(s) to put peers into small groups for them to select any one of the types and explain what it is; indicate types of materials in expert student teacher (s) to put peers into small groups for them to select any one of the types and explain what it is; indicate types of materials elected and follow guidelines or the total can be created from that material, characteristics, criteria, importance and how they can be preserved/stored.  Assist expert student teacher to guide groups to present whole class for discussion. (PD theme 2, 3, 4, 5) Present assignment in posters to whole class for discussion. (PD theme 2, 3, 4, 5) Practical activity Pari student teachers in their groups to prepare a TLM from selected material and explain how and what it can be used to teach in their specialisms.  This has to be presented before the next lesson. (PD theme 4, 5)  Lesson assessments — Formative Assessment: In-lesson assessment of presentation by peers TLM prepared and presented  Promative Assessment: In-lesson assessment of presentation by peers TLM prepared and presented  Mobile phones Laptops Videos from YouTube  Required Text (core)  Adeove, B. F. (2015). Technology guide for teaching & learning. Ibadan-Nigeria: His Lineage Publishing House. Apab, S. A. A. Layea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for				_					
have been observed during STS.   Face-to-face & student-led discussion   Guide selected expert student teacher to facilitate lesson is sesson by using questioning to explore student teacher to facilitate lesson. Respond to use for face a student leader for facilitate lesson. Respond to using questioning to explore student teachers' understanding of community resources. (PD theme 2, 4, 5) and types of TLMs:    Pager made TLMs					RPK.				
60 minutes									
discussion   Guide selected expert student teacher to facilitate lesson by using questioning to explore student teacher sheathers of the teachers of the tea			60 minutes		Face-to-face & student-				
teacher to facilitate lesson by using questioning to explore student teachers' understanding of community resources. (PD theme 2, 4, 5) and types of TLMs:  Paper made TLMs Wood made TLMs Plastic made TLMs Work in groups on the type of materials that can be created from that material, characteristics, criteria, importance and how they can be preserved/stored. Assist expert student teacher to guide groups to present whole class for discussion. (PD theme 2, 3, 4, 5) Practical activity Pair student teachers in their groups to present a TLM from selected material and explain how and what it can be used to teach in their specialisms. This has to be presented before the next lesson. (PD theme 4, 5)  Lesson assessments—evaluation of learning: of, for and as learning within the lesson Instructional Resources  Mobile phones Laptops Woldes from YouTube Required Text (core) Adeove, B. F. (2015). Technology guide for teaching & learning. Ibadan-Nigeria: His Lineage Publishing House. Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for			oo miiiaces						
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Ominutes   Plastic made TLMs									
## Plastic made TLMs    Practical work   Guide expert student teacher(s) to put peers into small groups for them to select any one of the types and explain what it is, indicate types of materials that can be created from that material, characteristics, criteria, importance and how they can be preserved/stored.    Assist expert student teacher to guide groups to present whole class for discussion. (PD theme 2, 3, 4, 5)    30 minutes   Practical activity Pair student teachers in their groups to prepare a TLM from selected material and explain how and what it can be used to teach in their specialisms.    This has to be presented before the next lesson. (PD theme 4, 5)    Lesson assessments - evaluation of learning: of, for and as learning within the lesson linstructional Resources   Mobile phones									
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for them to select any one of the types and explain what it its; indicate types of materials that can be created from that material, characteristics, criteria, importance and how they can be preserved/stored.  Assist expert student teacher to guide groups to present whole class for discussion. (PD theme 2, 3, 4, 5)  30 minutes  Present assignment in posters to whole class for discussion. (PD theme 2, 3, 4, 5)  Practical activity Pair student teachers in their groups to prepare a TLM from selected material and explain how and what it can be used to teach in their specialisms.  This has to be presented before the next lesson. (PD theme 4, 5)  Lesson assessments – evaluation of learning: of, for and as learning within the lesson  Instructional Resources  Mobile phones Laptops Videos from YouTube  Required Text (core)  Addeoye, B. F. (2015). Technology guide for teaching & learning. Ibadan-Nigeria: His Lineage Publishing House. Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for				The state of the s					
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<ul> <li>Laptops</li> <li>Videos from YouTube</li> <li>Required Text (core)</li> <li>Adeoye, B. F. (2015). Technology guide for teaching &amp; learning. Ibadan-Nigeria: His Lineage Publishing House.</li> <li>Amoah, S. A., Laryea, P., &amp; Amoako, B. M. (2016). Fundamentals of educational technology for</li> </ul>									
<ul> <li>◆ Videos from YouTube</li> <li>Required Text (core)</li> <li>Adeoye, B. F. (2015). Technology guide for teaching &amp; learning. Ibadan-Nigeria: His Lineage Publishing House.</li> <li>Amoah, S. A., Laryea, P., &amp; Amoako, B. M. (2016). Fundamentals of educational technology for</li> </ul>	Instructional Resources								
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				oako, B. M. (2016). Fundamentals of	educational technology for				
		effective t	teaching and lear	rning. Winneba:University Press.					
Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.									
Additional Reading List rmaing Teacher Education and Learning (2017). Teaching and learning materials. Accra: Ministry	Additional Reading List	rmaing Teacher	Education and L	earning (2017). Teaching and learnin	g materials. Accra: Ministry				

	of Education.  Heinich, R., Molenda, M., Russel, J. D., &Smaldino, E. S. (1996). <i>Instructional media and technologies for learning (5<sup>th</sup>ed)</i> . Prentice Hall.  Rowntree, D. (1982). <i>Educational technology in curriculum development</i> . London: Harper and Row
CPD needs	Preparing TLM using various community resources

Year of B.Ed. 2	Semester 2	Place of lesson in semester	123456 <b>7</b> 89101112
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Titl	e of Lesson	Instructional a	nd visual D	esign II			Lesso	n Duration	3 H	lours
Les	son description	Carey's Model knowledge on of Dick and Ca	This lesson is aimed at introducing student teachers to two instructional design models, Dick and Carey's Model and ADDIE Model. This lesson aims at helping student teachers to apply the knowledge on basic elements of visual design, and principles for creating visual design to the use of Dick and Carey's Model and ADDIE Model in designing instruction for effective learning						the to the use	
		outcomes.								
	vious student teacher	Student teach								
	owledge, prior learning	characteristics						peen introduce	ed to	basic
	sumed)	elements of vi								
	ssible barriers to learning	Challenges fac								
	the lesson	design, as well							rrier.	
	son Delivery – chosen to	Face-to-face	Practical	Work-	Seminars	Independer	nt	E-learning		Practicum
-	port students in	[1]	Activity	Based	[]	Study [ V ]		opportunitie	es	
	nieving the outcomes		[V]	Leaning				[√]		
	son Delivery – main	Face-to-face: (								
	de of delivery chosen to	Practical work		-		-		grouping to er	iabie	student
	port student teachers in	teachers to wo			•			اء احدادات حداد		- f
	nieving the learning	E-learning opp		_			ns and	using digital d	evice	s tor
	comes.	searching, asse								
•	Overarching outcome,	By the end of t								
	what you want the	a learning mat					-			-
	students to achieve,	Carey's Model								
	serves as basis for the	understand an								•
	learning outcomes. An	considering ge			-		integra	ating ICT in ins	truct	ional
	expanded version of	processes (NTS	5 1a, 2c, 3c,	3d, 3e, 3	f, 3g, 3m, 3p)					
	the description.									
•	Write in full aspects of the NTS addressed									
•	Learning Outcome for	Learning Outc	omes	Lea	arning Indica	tors	Ident	ify which cros	s cut	ting issues
	the lesson, picked and						- cor	e and transfer	able	skills,
	developed from the						inclus	sivity, equity a	and a	ddressing
	course specification						diversity. How will these be			
•	Learning indicators for						addressed or developed?			
	each learning outcome	Demonstrate k	nowledge a	and •	Explain inst	ructional	•	ntegration of I	CT by	utilising
	-	understanding	of the		design as a means of			short videos from YouTu		
		concept, instru	ictional des	ign.	improving instruction			ind other onlir	ne res	sources.
					and learning outcomes			Collaboration a	and	
		Demonstrate k	nowledge,		in inclusive	, multi-	c	ommunication	n thro	ough group
		understanding	and skills i	n	grade and			resentations.		
		using Carey's N	∕lodel in		developme	ntally	• (	Gender, equity	thro	ugh fair
		designing instr	uction for		appropriate	upper		listribution of		
		learners in incl	usive and		early grade	classrooms.		earning oppor		-
		developmenta	lly appropr	iate •	Explain the	features of		out of classroo		
		upper early gra			Carey's Mo			ind diversity th		
		classrooms.			apply it in c			icknowledgme	_	
					and develo			lifferences in t		
		Demonstrate knowledge,			materials for learning		Reflection and crit			
		understanding and skills in			in a specific upper					J
		using ADDIE M			early grade subject.			for self-awareness through multi and varied interact		
		designing instr			7 8	,		trategies to su		
		learners in incl			Explain the	features of		vith diverse ch		
		developmenta			ADDIE Mod			Creativity and		
		upper early gra			apply it in c			leveloping TLN		
Ì		classrooms.			and develo			lesigns	v13 US	ing various

	Demonstrate knowledge and understanding on differences and similarities between Carey's Model and the ADDIE Model, and the advantages of using them during instructional activities in inclusive and developmentally appropriate upper early grade classrooms.		materials for learning in a specific upper early grade subject area.  • Discuss the differences and similarities between Carey's Model and ADDIE Model, and the advantages of using them during instructional activities in inclusive and developmentally appropriate upper early grade classrooms.			
Topic Title: Instruction and Visual Design II			Teaching and learning activities to on the delivery mode selected. Tea	•		
	Sub-topic	Stage/time	work or independent. Teacher Activity	Student Activity		
	Instructional Design Models (Carey's Model and ADDIE Model)	40 minutes  70 minutes	Face-to-face: Use questioning and shower thought to assist student teachers to review their previous knowledge and experiences on the use of assistive and adaptive devices in instructional processes to introduce lesson to explain instructional design. Use tutor-led discussion to introduce student teachers to Carey's Instructional Design Model and ADDIE Instructional Model (PD Theme 2; pp. 5-14; PD Theme 3; pp. 75-82).	Face-to-face Student teachers share and build on their knowledge and experiences on the use of assistive and adaptive devices in instructional processes to explain instructional design. Through tutor-led discussion, student teachers understand the characteristics of Carey's Instructional Design Model and ADDIE Instructional Model. Student teachers, in jigsaw with cross grouping, design materials for learning in a specific subject for an inclusive upper early grade classroom and submit their project work for marking.		
		70 minutes	Independent Study and Practical Work/Project: Use jigsaw with cross grouping to enable student teachers to discuss and apply Carey's Instructional Design Model and ADDIE Instructional Design Model to design materials for learning in a specific subject for an inclusive upper early grade classroom as a project work to be submitted for marking (PD Theme 4; pp. 69-98; PD Theme 5; pp. 29-60).	Independent Study and Practical Work/Project: Discuss assigned models in groups and do a jigsaw or cross presentation.		

		Independent Study: Use mixed gender and mixed attainment group work to assist student teachers to discuss the differences and similarities between Carey's Model and ADDIE Model, and the advantages of using them in inclusive upper early grade classrooms. Groups are to present their findings in a poster form (PD Theme 4; pp. 19-44).  Guide student teachers to examine how the models are	Independent Study: Through mixed gender and mixed attainment group activities, student teachers discuss the differences and similarities between Carey's Model and ADDIE Model, as well as the advantages of using them in inclusive upper early grade classrooms. Student teachers present their findings in a poster form.  Examine the application of the models in real life			
		applicable in classroom contexts	contexts.			
Lesson assessments –	In-lesson Assessment: This sho	uld be part of summative assessment	<u> </u>			
evaluation of learning: of,		tween Carey's Model and ADDIE Mod				
for and as learning within the lesson	Instructional Design Model an life contexts.	d ADDIE Instructional Design Model. E	xamine its application in real			
the lesson	ille contexts.					
Instructional Resources	<ul> <li>Transforming Teacher Edin Professional development</li> <li>Transforming Teacher Edin Professional development</li> <li>Transforming Teacher Edin development guide fortut</li> <li>Transforming Teacher Edin guide for tutors. Accra. Mi</li> <li>Transforming Teacher Edin guide for tutors. Accra. Mi</li> <li>YouTube</li> </ul>	Jucation tool kit. Walton Hall: United k Jucation and Learning (2016). Teaching a guide for tutors. Accra. Ministry of Education and Learning (2016). Teaching a guide for tutors. Accra. Ministry of Education and Learning (2016). Talk for known accra. Ministry of Education (www.ucation and Learning (2016). Group was unistry of Education (www.t-tel.org). Jucation and Learning (2016). Question inistry of Education (www.t-tel.org).	and learning materials: ducation (www.t-tel.org) and learning materials: ducation (www.t-tel.org) earning: Professional w.t-tel.org). ork: Professional development ing: Professional development			
Required Text (core)	Adeoye, B. F. (2015). <i>Technology guide for teaching &amp; learning</i> . Ibadan-Nigeria: His Lineage Publishing House.  Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). <i>Fundamentals of educational technology for effective teaching and learning</i> . Winneba: UEW Press.  Gagne, R. M. & Briggs, L. J. (1979). Principles of instructional design (2 <sup>nd</sup> ed.). New York: Holt, Rinehalt, & Winston.  Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.  Transforming Teacher Education and Learning (2016). <i>Teaching and learning materials: Professional development guide for tutors</i> . Accra. Ministry of Education (www.t-tel.org).					
Additional Reading List	Driscoll, M.P. (2005). <i>Psycholo</i> Rowntree, D. (1982). <i>Educatio</i> Row.	gy of learning for instruction. Boston: nal technology in curriculum developn & Russell, D.J. (2008). Instructional tec	Pearson Education Inc. nent. London: Harper and			
	learning (9 <sup>th</sup> ed.). Upper saddle River,		<i>5,</i> 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
CPD needs	Workshop on instructional des					

Year of B.Ed.	2	Semester	2	Place of lesson in semester	1 2 3 4 5 6 7 <b>8</b> 9 10 11 12
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Title of Lesson	Models a their Use		daptation	for Inclusive C	lassrooms and	Lesson Duration		3 Hours		
Lesson description			osing stud	ent teachers to	types of models		ally consi	dering solid		
Lesson description										
		models, cross section models, construction and working model, dioramas and puppets. The lesson also seeks to introduce student teachers to the appropriate ways of developing learning								
		materials using low or no cost resources.								
Previous student teacher		Student teachers have been introduced to basic elements of visual design, principles for creating								
knowledge, prior learning		Student teachers have been introduced to basic elements of visual design, principles for creating visual design, and instructional design models (Carey's Instructional Design Model and ADDIE								
(assumed)		-		_	o observed their	_				
(assumed)		•			ain, they have w		. , .			
					instructional des					
	used to te					.6				
Possible barriers to			nd poor int	ernet connectiv	vity. Large class s	ize could al	so he a h	arrier		
learning in the lesson	maacqaa	10 101 10013 41	ia poor iiii	ernet connectiv	vity. Large class s	ize codia di	30 BC a B	urrier.		
Lesson Delivery – chosen to	Face-to-	Practical	Work-	Seminars	Independent	E-learni	na	Practicum		
support students in	face	Activity	Based	[]	Study	opportu	_	Fracticum		
achieving the outcomes	[ \( \) ]	[V]	Leaning		[V]	[ \ ]				
Lesson Delivery – main				ower thoughts.	[[4]	[ ]				
mode of delivery chosen to			_	_	: Watching short	videos ani	mations :	and		
support student teachers in					urces designed o					
achieving the learning		ng types of mo			ui ces uesignieu 0	iii powei po	mit SHOW	iiig ways Ol		
outcomes.					ss grouping to er	ahla studai	at toacho	rs to work		
outcomes.			-		or no cost resour					
	models.	to design lead	illing illate	iliais usilig low i	or no cost resour	ces baseu c	on the typ	Jes OI		
a Overeyshing outcome		oachare would	d ho ablo t	o domonstrato	knowledge and ι	ındorstandi	ng of the	tupos of		
Overarching outcome,					-		-			
what you want the		_			on and working r					
students to achieve,	-				nowledge, under	_				
serves as basis for the					st resources proj					
learning outcomes. An					oping materials/r		_	-		
expanded version of				-	ns, especially du			_		
the description.					and transferable					
Write in full aspects of					ion, reflective pr					
the NTS addressed			nong studi	ent teachers at	the end of the le	55011. (IN I 3	1a, 2C, 3C	., sa, se, si,		
	3g, 3m, 3					1-1				
Learning Outcome for	Learning	Outcomes		earning Indicat	ors	_		oss cutting		
the lesson, picked and					issues – core and					
developed from the					transferable skills,					
course specification					inclusivity, equity and addressing diversity. How					
Learning indicators for							_	-		
each learning outcome								lressed or		
	D					develop		1		
		rate knowledg				l l	ativity an			
		nding of the ty	ypes	(solid, cross	•			developing		
		s (solid, cross			n and working		1s using r			
		onstruction a		models, dio		l l	gration o	-		
	_	nodels, diorar	ma	puppets) for	-		sing sho			
		ets) used for			cepts in inclusive	l l	n YouTul			
		materials for		upper early	-			resources.		
	teaching specific concep inclusive upper early gra		•		using low-cost		aboratio			
			ade	materials.		con	nmunicat	ion through		
	classroom	ıs.	•		rning materials	gro	up prese	ntations.		
				for teaching	•	• Ger	nder, equ	ity through		
		rate knowledg		concepts in	inclusive upper		distribut	ion of		
		nding and skilling learning	ls in	early grade	classrooms using	g tead	ching and	learning		

	1		T	
	materials for te	_		of classroom, inclusivity,
	specific concep			and diversity through
	upper early gra			acknowledgment of individual differences in
	using low or no resources.	COSL		the classroom.
	resources.			Reflection and critical
				thinking for self-
				awareness through
				multi and varied
				interactive strategies
				that would support
				learners with diverse
				characteristics.
Topic Title: Models and			Teaching and learning activities t	
material adaptation for			depending on the delivery mode s	
inclusive early grade school	Sub-topic	Stage/time	collaborative group work or indep	
settings			Teacher Activity	Student Activity
	Models and	45 minutes	Face-to-face:	Face-to-face
	material		Use questioning and shower	Student teachers share their
	development		thought to review student	understanding of their
			teachers' relevant previous	relevant previous knowledge
			knowledge on the lesson (PD	and experiences.
			Theme 2; pp. 5-14; PD Theme 3;	
			pp. 75-82).	Student teachers share their
			Har working a read whole slave	views and experiences on
			Use questioning and whole class	types of models (solid, cross
			discussion on the types of models (solid, cross section,	section, construction and working models, diorama
			construction and working	and puppets) used for
			models, diorama and puppets)	designing materials for
			(PD Theme 2; pp. 5-14; PD	teaching specific concepts in
			Theme 3; pp. 75-82).	inclusive upper early grade
		45 minutes		classrooms.
			E-learningOpportunity and	
			Independent Study:	E-learning Opportunity and
			Use short videos, animations and	Independent Study:
			simulations from YouTube and	Student teachers watch
			other online resources designed	short videos, animations and
			on power point showing ways of	simulations from YouTube
			developing types of models for	and other online resources designed on power point
			learning in upper early grade classrooms using low or no cost	showing ways of developing
			resources, after which	types of models for learning
			comments and discussions are	in upper early grade
		90 minutes	made (PD Theme 5; pp. 29-60).	classrooms using low or no
				cost resources after which
			Practical Work and Project:	discussions are made.
			Guide studentteachers to work	
			in small groups to design	Practical Work and Project:
			learning materials using low or	Undertake a project by
			no cost resources based on the	designing learning materials
			types of models (solid, cross	using low or no cost resources based on the
			section, construction and working models, diorama and	types of models (solid, cross
			puppets) to teach concepts in	section, construction and
			their subject area	working models, diorama
			Let student teachers submit	and puppets) in a particular
			their group project work within	subject area. Submit their
			the week. 9PD Theme 3; pp. 65-	project work for assessment
			72; PD Theme 4; pp. 69-98).	in a week.

1	Formation Account Account of the death and account and account of the death and account account and account account and account and account account and account account and account account and account account account and account accoun							
Lesson assessments –	Formative Assessment: Assessment of student teachers' group practical and project work on							
evaluation of learning: of,	using low or no cost resources for designed learning materials and models to teach concepts in							
for and as learning within	their specialisms.							
the lesson	Assessment weight: 30 %							
Instructional Resources	<ul> <li>TESSA (2016). Inclusive education tool kit. Walton Hall: United Kingdom</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org)</li> <li>Transforming Teacher Education and Learning (2016). Group work: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Talk for learning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials:</li> </ul>							
	<ul> <li>Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Questioning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>YouTube</li> </ul>							
Required Text (core)	<ul> <li>Adeoye, B. F. (2015). Technology guide for teaching &amp; learning. Ibadan-Nigeria: His Lineage Publishing House.</li> <li>Amoah, S. A., Laryea, P., &amp; Amoako, B. M. (2016). Fundamentals of educational technology for effective teaching and learning. Winneba: UEW Press.</li> <li>Gagne, R. M. &amp; Briggs, L. J. (1979). Principles of instructional design (2<sup>nd</sup> ed.). New York: Holt, Rinehalt, &amp; Winston.</li> <li>Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> </ul>							
Additional Reading List	for tutors. Accra. Ministry of Education (www.t-tel.org).  Driscoll, M.P. (2005). Psychology of learning for instruction. Boston: Pearson Education Inc. Rowntree, D. (1982). Educational technology in curriculum development. London: Harper and Row.  Smaldino, S.E., Lowther, D.L., & Russell, D.J. (2008). Instructional technology and media for learning (9 <sup>th</sup> ed.). Upper saddle River, NJ: Engle Cliff Woods							
CPD needs	Workshop on use of low-cost materials in developing various models for teaching concepts in their specialisms							

	Year	of B.Ed.	2	Semester	2	Place of lesson in semester	12345678 <b>9</b> 10 11 12
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	1									
Title of Lesson		and Material	Adaptat	ion for	Inclusive Cla	ssrooms and	their L	Jses	Lesson	3
Losson description	II This loss								Duration of the starting of th	Hours
Lesson description	This lesson seeks to introduce student teachers to the criteria for selecting materials for teachin in inclusive upper early grade classrooms with learners from diverse background. The lesson als aims at exposing student teachers to the factors for selecting materials during instructional activities in inclusive upper early grade classrooms with learners from diverse background.								sson also nal	
Previous student teacher	Student	Student teachers have been introduced to the types of models and how to develop learning								
knowledge, prior learning		materials using low and no cost resources. Student teachers have also observed some teachers								eachers
(assumed)		erent materia								
Possible barriers to		te ICT tools a								
learning in the lesson		ing in inclusiv								
Lesson Delivery – chosen	Face- to-face	Practical	Work-		Seminars	Independe		-learniı	•	Practicum
to support students in achieving the outcomes	[V]	Activity [v]	Based Leanin	a	[]	Study [√]		pportu √]	nities	
Lesson Delivery – main		ace: Question			r thoughts	[ [ V ]	L	v j		
mode of delivery chosen		g opportunit				Vatching sho	ort video	os. anin	nations and	I
to support student		ns from YouT								
teachers in achieving the		ng types of m								, .,
learning outcomes.		Work and Pr			-	grouping to	enable	studen	t teachers	to work in
		design learn								
<ul> <li>Overarching</li> </ul>		teachers wou			•			-		
outcome, what you		upper early g								
want the students to		esponsible for								
achieve, serves as	_	ssrooms. It is								
basis for the learning		collaboration								
outcomes. An expanded version of	<b>3p).</b>	oped among s	student i	leache	s at the end	or the lesson	. (1415 1	La, 2C, 3	sc, su, se, s	sı, əg, əm,
the description.	эр).									
Write in full aspects										
of the NTS addressed										
Learning Outcome	Learning	Outcomes		Learr	ing Indicator	S	Identi	fy whic	ch cross cut	ting issues
for the lesson, picked								-	ansferable	_
and developed from							inclus	ivity, e	quity and a	ddressing
the course								-	w will thes	
specification									r developed	
<ul> <li>Learning indicators</li> </ul>		eachers wou			xplain the cri			_	ion of ICT b	
for each learning		l to explain th	e		electing teacl				leos from Y	
outcome		or selecting			earning resou				er online re	sources.
		s to teach in upper early g	rado		ised during ST Examine the fa		_		ation and	ough
		upper early g ns. Student	raue		esponsible fo				nication thre	-
		would also be	2		esponsible to neffective ma		_		esentation: equity thro	
		to explain th			ised to facilita				ion of teacl	
		esponsible for			earning in the				opportunit	-
		ve materials u			rade school.	,			assroom, in	
	instruction	onal activities	in		,				rsity throug	
	inclusive	upper early g	rade						edgment of	
		ns. <b>(NTS 1a, 2</b>							al differenc	
	3d, 3e, 3	f, 3g, 3m, 3p)					cl	assroo	m.	
									n and critic	_
									awareness t	_
									d varied int	
								_	es that wou	
									with divers	e
							cł	naracte	ristics.	

Topic Title: Models and			Teaching and learning activi	ties to achieve outcomes			
Material Adaptation for			depending on the delivery m				
Inclusive Classrooms and	Sub-topic	Stage/time	collaborative group work or independent.				
their Uses II			Teacher Activity	Student Activity			
	Criteria for		Face-to-face:	Face-to-face			
	selecting		Use questioning and shower	Student teachers share their			
	materials;	30 minutes	thought to review student	understanding of their			
	factors behind		teachers' relevant previous	relevant previous knowledge			
	ineffective		knowledge on the lesson	and experiences.			
	materials; and		(PD Theme 2; pp. 5-14; PD				
	Adaptive and		Theme 3; pp. 75-82).				
	Assistive			Face-to-face			
	Technologies		Face-to-face	Provide relevant responses to			
	(AATs) for SEN	80minutes	Guide student teachers to	questions posed by teachers.			
			explore and discuss he				
			criteria for selecting				
			materialsusing talk for				
			learning approaches (PD				
			Theme 2; pp. 5-14; PD	Independent study & group			
			Theme 3; pp. 75-82).	work			
				Work in pairs and do			
			Independent study & group	presentation			
		90 minutes	work				
			Put student teachers into				
			pairs for them to pair and				
			share factors contributing				
			to the ineffective use of				
			materials.				
			Guide them to present				
			findings				
Lesson assessments –	In-lesson Assessm	ient					
evaluation of learning: of,	Peers listen and as	ssess colleagues o	luring presentations				
for and as learning within							
the lesson							
Instructional Resources			<i>ucation tool kit</i> . Walton Hall: Un	_			
		-	cation and Learning (2016). <i>Tea</i>				
			<i>guide for tutors</i> . Accra. Ministry				
		-	cation and Learning (2016). <i>Gro</i>				
			ors. Accra. Ministry of Educatior				
			cation and Learning (2016). <i>Talk</i>				
			ors. Accra. Ministry of Educatior				
		-	cation and Learning (2016). <i>Tea</i>				
			<i>guide for tutors</i> . Accra. Ministry	· <u> </u>			
			cation and Learning (2016). Que				
	· ·	nent guide for tut	ors. Accra. Ministry of Education	n ( <u>www.t-tel.org</u> ).			
	YouTube						
Required Text (core)			uide for teaching & learning. Iba	dan-Nigeria: His Lineage			
	Publishing H						
			, B. M. (2016). Fundamentals of	educational technology for			
	effective tea	ching and learnin	g. Winneba: UEW Press.	and the second			
			Principles of instructional design	(2 <sup>nd</sup> ed.). New York: Holt,			
	Rinehalt, & Winsto						
			inology. Kumasi: Wilas Press Ltd				
			nd Learning (2016). Teaching and	=			
			ide for tutors. Accra. Ministry of				
Additional Panding List							
Additional Reading List	Driscoll, M.P. (2005). <i>Psychology of learning for instruction</i> . Boston: Pearson Education Inc. Rowntree, D. (1982). <i>Educational technology in curriculum development</i> . London: Harper and Row.						
Additional Reading List							
Additional Reading List	Smaldino, S.E., Lov		ssell, D.J. (2008). Instructional te	chnology and media for			
	Smaldino, S.E., Lov <i>learning</i> (9 <sup>th</sup> ed.).	Upper saddle Riv	er, NJ: Engle Cliff Woods				
CPD needs	Smaldino, S.E., Lov <i>learning</i> (9 <sup>th</sup> ed.).	Upper saddle Rive use of digital lite					

Year of B.Ed.	2	Semester	2	Place of lesson in semester	123456789 <b>10</b> 1112
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Titl	e of Lesson	Models ar	nd Material A	daptati	on for	Inclusive Clas	ssrooms and the	ir Uses	Lesson Duration	3 Hours
Les	son description		n which shoul	ld he ha	sed on	co-teaching v	with SFN experts	aims at		udent
LCJ	son description	This lesson which should be based on co-teaching with SEN experts, aims at exposing student teachers to the meaning and types of Adaptive and Assistive Technologies (AATs) for inclusive								
			upper early grade classrooms. The lesson also seeks to introduce student teachers to the							
							istive Technolog			
			e classrooms						,	
Pre	vious student teacher				roduce	ed to the crite	eria for selecting	materials	s to teach in	inclusive
kno	owledge, prior learning						neffective mater			
	sumed)						chers have obse			
		teachers f	or teaching u	pper ea	rly grad	de classrooms	during STS. The	y have al	so observed	I the types
		of materia	ls their tutor	s bring t	o the l	ecture room (	during lectures.			
Pos	ssible barriers to			•			y to watch short		,,	
lea	rning in the lesson	Adaptive a	and Assistive	Technol	ogies (	AATs) and ho	w they are used	for SEN i	n inclusive ι	ipper early
		grade clas		learners	from (	diverse backg	rounds.			
	son Delivery – chosen	Face-to-	Practical	Work-		Seminars	Independent	E-learni	_	Practicum
	support students in	face	Activity	Based		[]	Study	opportu	unities	[√]
	nieving the outcomes	[٧]	[٧]	Leanin			[٧]	[٧]		
	son Delivery – main			_			d shower though			
	de of delivery chosen	-	•	-			nment small gro	•		nt teachers
	support student			_			ve Technologies			ام م ما
	chers in achieving the	_			_		imations and sin			
iea	rning outcomes.	used.	ne resources	on now	types	of Adaptive al	nd Assistive Tech	moiogies	(AATS) for S	sen are
			Nork and Pra	cticum:	iiacaw	with cross a	rouping to enab	la studan	t taachars t	n role nlav
						_	ssistive Technol			o roic play
•	Overarching						aptive and Assist			Ts), and
	outcome, what you						logies (AATs) fo			
	want the students to	-					ce of using Adap			
	achieve, serves as				-		ooms. It is also e			_
	basis for the learning					-	rate how Adapti			
	outcomes. An	(AATs) are	used approp	riately i	n inclu	sive upper ea	rly grade classro	oms, esp	ecially durir	ng STS. It is
	expanded version of	also the ex	xpectation th	at core a	and tra	ınsferable skil	ls including gend	der, equit	y, diversity,	
	the description.						ve practice and o		_	
•	Write in full aspects	developed	l among stud	ent teac	hers at	t the end of th	ne lesson. <b>(NTS</b> 1	La, 2c, 3c,	, 3d, 3e, 3f,	3g, 3m,
	of the NTS addressed	3p).						•		
•	Learning Outcome	Learning C	Outcomes		Learn	ning Indicator	s	-	which cros	_
	for the lesson, picked								core and to	
	and developed from								clusivity, e	-
	the course								ing diversit	-
	specification								se be addre	ssea or
•	Learning indicators	Domonstr	ata kaawlada	ro and	• E	Typlain the my	aning of	develop		CT hu
	for each learning outcome		ate knowledg ding of the	ge anu		Explain the me Adaptive and A	_		egration of I ising short v	
	outcome		ind types of			Technologies (			m YouTube	
		_	and Assistive				pes for SEN in		ine resource	
			gies (AATs) for	r SEN		nclusive uppe			laboration a	
		_	e upper early			classrooms.	, g		nmunication	
		classroom		_		Explain the rel	evance of		up presenta	_
							e and Assistive		nder, equity	
		Demonstr	ate knowledg	ge and			(AATs) for SEN		distribution	_
			ding of the			n inclusive up			ching and le	
			of using Ada	otive		grade classroc			ortunities i	_
			ive Technolog						classroom, ii	
		(AATs) for	SEN in inclus	ive					diversity th	

use of Adaptive Technologies (Ain inclusive upp classrooms.  Topic Title: Models and Material Adaptation for Inclusive Classrooms and Sub-topic		the appropriate	Show through role play, the use of appropriate Adaptive and Assistive Technologies (AATs) for SEN in inclusive upper early grade classrooms.  Teaching and learning activities to depending on the delivery mode so collaborative group work or independent.	selected. Teacher-led
their Uses III			Teacher Activity	Student Activity
	Adaptive and Assistive Technologie s (AATs) for SEN	45 minutes	Face-to-face (Co-teaching with SEN experts): Use questioning and shower thought to review student teachers' relevant previous knowledge and introduce the lesson.	Face-to-face (Co-teaching with SEN experts): Student teachers share their understanding of their relevant previous knowledge and experiences in the introduction of the lesson.
			Use questioning and whole class discussion to assist student teachers to understand the meaning and types of Adaptive and Assistive Technologies (AATs) for SEN (PD Theme 2; pp. 5-14: PD Theme 3: pp. 75-82)	Student teachers answer questions by sharing their understanding of the meaning and types of Adaptive and Assistive Technologies (AATs) for SEN.
		30 minutes	5-14; PD Theme 3; pp. 75-82).  Independent Study (Co-teaching	Independent Study (Co- teaching with SEN experts
		45 minutes	with SEN experts): Use mixed gender and mixed attainment small groups to enable student teachers discuss the relevance of using Adaptive and Assistive Technologies (AATs) for SEN in inclusive upper early grade classrooms after which they disseminate their findings through poster presentation (PD Theme 4; pp. 27-44).	Student teachers, through mixed gender and mixed attainment small groups, discuss the importance of using Adaptive and Assistive Technologies (AATs) for SEN in inclusive upper early grade classrooms panel or pyramid discussion. Student teachers present their group work through poster presentation.
		+5 minutes	2/-44).	E-learning Opportunity and
		60 minutes	E-learning Opportunity and Independent Study (Co-teaching with SEN experts): Use short videos, animations and simulations from YouTube and other online resources on how types of Adaptive and Assistive Technologies (AATs) for SEN are used (PD Theme 5; pp. 29-60).	Independent Study (Coteaching with SEN experts): Student teachers watch short videos, animations and simulations from YouTube and other online resources on how types of Adaptive and Assistive Technologies (AATs) for SEN are used after which discussions are made.
			Practical Work and Practicum (Co-teaching with SEN experts): Use jigsaw with cross grouping	Practical Work and Practicum (Co-teaching with SEN experts): In jigsaw with cross grouping, student teachers

	to enable student teachers to role play the appropriate use of the types of Adaptive and Assistive Technologies (AATs) for SEN in inclusive upper early grade classrooms, after which comments are given for discussion (PD Theme 4; pp. 69-98).  demonstratethe appropriate use of the types of Adaptive and Assistive Technologies (AATs) for SEN in inclusive upper early grade classrooms. Comments are given for discussion afterwards.					
Lesson assessments –	In-lesson Assessment:					
evaluation of learning: of,	Student teachers demonstrate use of different adaptive and assistive technologies for peers to					
for and as learning within	assess.					
the lesson	TTCCA (2005) 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4					
Instructional Resources	<ul> <li>TESSA (2016). Inclusive education tool kit. Walton Hall: United Kingdom</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org)</li> <li>Transforming Teacher Education and Learning (2016). Group work: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Talk for learning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Questioning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>YouTube</li> </ul>					
Required Text (core)	Adeoye, B. F. (2015). <i>Technology guide for teaching &amp; learning</i> . Ibadan-Nigeria: His Lineage Publishing House.					
	Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). Fundamentals of educational technology for effective teaching and learning. Winneba: UEW Press.					
	Gagne, R. M. & Briggs, L. J. (1979). Principles of instructional design (2 <sup>nd</sup> ed.). New York: Holt, Rinehalt, & Winston.					
	Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.					
	Transforming Teacher Education and Learning (2016). Teaching and learning materials:					
	Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).					
Additional Reading List	Driscoll, M.P. (2005). <i>Psychology of learning for instruction</i> . Boston: Pearson Education Inc.					
	Rowntree, D. (1982). Educational technology in curriculum development. London: Harper and					
	Row. Smaldino, S.E., Lowther, D.L., & Russell, D.J. (2008). <i>Instructional technology and media for</i>					
	learning (9 <sup>th</sup>					
	ed.). Upper saddle River, NJ: Engle Cliff Woods					
CPD needs	Workshops on the use of digital literacy (audio-visual and tactile analysis), PD Theme 1; PD Theme					
	2; PD Theme 3; PD Theme 4; PD Theme 5.					

Year of B.Ed.	2 Semester	2	Place of lesson in semester	12345678910 <b>11</b> 12
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T:41	f1	Hanadhal	d Taskusalas:	/B4-b		l Minalaga La	\		1	2.112	
Hiti	e of Lesson	Handnei	d Technologi	es (iviobi	ie and	i wireless Le	arning)		Lesson Duration	3 Hours	
Les	son description	This less	on seeks to in	troduce	studei	nt teachers to	the concept an	d propert		held	
	oon accompanion	This lesson seeks to introduce student teachers to the concept and properties of handheld technology. Specifically, the lesson aims at exposing student teachers to relevance and the u									
		computers and mobile devices in creating communication, and teaching and learning								i tile use of	
		applications.									
Pre	vious student teacher		Student teachers have been introduced to criteria for selecting materials for instruction in								
	wledge, prior learning		inclusive upper early grade classrooms, and the factors that account for ineffective use of								
	sumed)						ns. Student teacl				
		the types	s of Adaptive	and Assi	stive T	echnologies	(AATs) for SEN. I	Moreover	, student te	achers	
		have obs	erved their t	utors and	dothe	r instructors (	use computers a	nd mobile	e devices fo	r	
		classroor	m activities to	enhanc	e learr	ning. Student	teachers have a	lso been i	using their r	nobile	
		-		search t	for inf	ormation fro	m the internet, t	ake pictu	res and reco	ord	
		activities									
	sible barriers to	Inadequa	ate ICT tools a	and poor	interr	net connectiv	ity.				
	rning in the lesson										
	son Delivery – chosen	Face-	Practical	Work-		Seminars	Independent	E-learni	_	Practicum	
	support students in	to-face	Activity	Based		[٧]	Study	opportu	unities		
	ieving the outcomes	[٧]	[٧]	Leaning			[√]	[√]			
	son Delivery – main		face: Questio	_		_	<b>14</b> / - 4 - lo ! lo 4			1	
	de of delivery chosen			-	-	-	Watching short				
	support student chers in achieving the		ng types of m				ırces designed o	ii bowei t	Joint Shown	ig ways oi	
	rning outcomes.						s grouping to en	ahla stud	ant taachar	s to work	
ica	ining outcomes.			-			or no cost resour				
		models.	o to design le	u	acciiai	is asing low o	110 0030 103001	ccs basea	on the typ	23 01	
•	Overarching outcome,		teachers wou	ıld be abl	e to e	xplain the co	ncept, propertie	s and rele	vance of ha	ındheld	
	what you want the					-	to discuss the re				
	students to achieve,						eaching and lear				
	serves as basis for the						d that student to				
	learning outcomes. An	the appr	opriate skills	in using o	compu	iters and mol	bile devices in cr	eating co	mmunicatio	n, and	
	expanded version of	teaching	and learning	applicat	ions fo	r inclusive up	oper early grade	classroor	ns, especial	ly during	
	the description.	STS. It is	expected tha	t core an	d tran	sferable skill	s including gend	er, equity	, diversity,		
•	Write in full aspects of						tive practice and				
	the NTS addressed	-	ed among stu	dent tea	chers a	at the end of	the lesson (NTS	1a, 2c, 3c	:, 3d, 3e, 3f,	3g, 3m,	
		3p).	•								
•	Learning Outcome for	Learning	Outcomes		Learr	ing Indicato	rs	-	which cros	_	
	the lesson, picked and									ransferable	
	developed from the course specification								iclusivity, e sing diversit		
•	Learning indicators for								se be addre	-	
•	each learning							develop		.3364 01	
	outcome	Demonst	trate knowled	dge	• [	Discuss the m	eaning and		egration of	ICT by	
	outdoine .		erstanding of	_		properties of	-		ising short v	-	
			of handheld			echnology			m YouTube		
			gy and prope	erties.				onl	ine resource	es.	
					• [	Discuss the re	levance of	• Col	laboration a	and	
		Demonst	trate knowled	dge	ŀ	nandheld tech	nnology such		nmunicatio		
		and unde	erstanding of	the		s computers	•		up presenta	_	
			e of handheld	t	c	levices in cre	ating	_	nder, equity		
		technolo	gy such as			communication	-		distribution	_	
		-	ers and mobile	e	t	eaching and	learning	tea	ching and le	earning	
			n creating		a	pplications in	n inclusive		ortunities i		
			ication, and			ıpper early gı	rade		classroom, i		
		teaching	and learning		C	lassrooms.		and	d diversity tl	nrough	

	applications in upper early graclassrooms.  Demonstrate the using handheld such as compute mobile devices communication teaching and leapplications in upper early graclassrooms.	ne skills in technology ters and in creating n, and arning inclusive	Exhibit the skills in using handheld technology such as computers and mobile devices in creating communication, and teaching and learning applications in inclusive upper early grade classrooms.	acknowledgment of individual differences in the classroom.  • Reflection and critical thinking for selfawareness through multi and varied interactive strategies that would support learners with diverse characteristics.
Topic Title: Handheld Technologies (Mobile and Wireless Learning)	Sub-topic	Stage/time	Teaching and learning activities t depending on the delivery mode s collaborative group work or indep	selected. Teacher-led
<b>0,</b>		, , , , , , , , , , , , , , , , , , ,	Teacher Activity	Student Activity
	The meaning, properties, relevance and use of handheld technology in creating communicati	45 minutes 45 minutes	Face-to-face: Use questioning to review student teachers' relevant previous knowledge to introduce the lesson (PD Theme 2; pp. 5-14).	Face-to-face: Student teachers respond to questions and share their views to contribute to the introduction of the lesson.
Lesson assessments —	on, and teaching and learning applications.		Independent Study and Seminar: Use pyramid discussion technique to enable student teachers discuss relevance of handheld technology such as computers and mobile devices in creating communication, and teaching and learning applications in inclusive upper early grade classrooms (PD Theme 4; pp. 27-30).  Practical Work and Project: Use jigsaw with cross grouping to enable student teachers to work in groups to use handheld technology (computers and mobile devices) to create communication, and teaching and learning applications suitable for inclusive upper early grade classrooms, and submit their group project work. (PD Theme 4; pp. 69-98; PD Theme 5; pp. 29-60)).	Independent Study and Seminar: Through pyramid discussion, student teachers discuss the relevance of handheld technology such as computers and mobile devices in creating communication, and teaching and learning applications in inclusive upper early grade classrooms. Student teachers then present their findings for comments and discussion. Practical Work and Project In jigsaw with cross grouping, student teachers undertake a project by creating communication, and teaching and learning applications suitable for inclusive upper early grade classrooms. Student teachers submit their project work for assessment
evaluation of learning: of, for and as learning within the lesson Instructional Resources	applications in	inclusive uppe	evices to create communication, and rearly grade classrooms= 20%	
instructional Resources	<ul> <li>Transf</li> </ul>	orming Teache	ive education tool kit. Walton Hall: U er Education and Learning (2016). <i>Te</i> ment guide for tutors. Accra. Ministr	aching and learning materials:

	<ul> <li>Transforming Teacher Education and Learning (2016). Group work: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Talk for learning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>Transforming Teacher Education and Learning (2016). Questioning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> <li>YouTube</li> </ul>
Required Text (core)	Adeoye, B. F. (2015). <i>Technology guide for teaching &amp; learning</i> . Ibadan-Nigeria: His Lineage Publishing House.  Amoah, S. A., Laryea, P., & Amoako, B. M. (2016). <i>Fundamentals of educational technology for effective teaching and learning</i> . Winneba: UEW Press.  Gagne, R. M. & Briggs, L. J. (1979). Principles of instructional design (2 <sup>nd</sup> ed.). New York: Holt, Rinehalt, & Winston.  Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.  Transforming Teacher Education and Learning (2016). <i>Teaching and learning materials: Professional development guide for tutors</i> . Accra. Ministry of Education (www.t-tel.org).
Additional Reading List	Driscoll, M.P. (2005). <i>Psychology of learning for instruction</i> . Boston: Pearson Education Inc. Rowntree, D. (1982). <i>Educational technology in curriculum development</i> . London: Harper and Row. Smaldino, S.E., Lowther, D.L., & Russell, D.J. (2008). <i>Instructional technology and media for learning</i> (9 <sup>th</sup> ed.). Upper saddle River, NJ: Engle Cliff Woods
CPD needs	Workshops on the use of digital literacy (audio-visual and tactile analysis), PD Theme 2; PD Theme 3; PD Theme 5.

Year of B.Ed.	2	Semester	2	Place of lesson in semester	1234567891011 <b>12</b>
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Title of Lesson	Storage and Evaluation/Audit of Multimedia Resources					Lesson	3 Hours							
							Duration							
Lesson description	This lesson, should be based on co-teaching with SEN experts, seeks to introduce student t							nt teachers						
	to the type of learning resources and the need for storing them. The lesson also aims at exposing													
	student teachers to the conduct of SEN/gender evaluation and audit of learning resources using													
	checklist. Again, the lesson seeks to introduce student teache					to the appropriate ways of storing								
	the various types of resources.													
Previous student teacher	Student teachers have been introduced to the criteria for selecting materials to teach in inclusive													
knowledge, prior learning	upper early grade classrooms, and factors behind ineffective materials in teaching upper early							r early						
(assumed)	grade learners in inclusive classrooms. Also, student teachers have been exposed to Adaptive a Assistive Technologies (AATs) for SEN, and their relevance in inclusive upper early grade						ptive and							
							early grade							
	classrooms, and could demonstrate the use of these AATs for SEN.													
Possible barriers to	Inadequate or lack of storage facilities.													
learning in the lesson														
Lesson Delivery – chosen	Face-to-	Practical	Work-	Seminars	Independent	E-learni	ng I	Practicum						
to support students in	face	Activity	Based	[٧]	Study	opportu	ınities							
achieving the outcomes	[ 🗸 ]	[٧]	Leaning		[ 🗸 ]	[ \dagger ]								
Lesson Delivery – main	Face-to-fa	ce: Question	ing and tutor-l	ed discussion										
mode of delivery chosen	Independ	ent Study and	<b>d Seminar:</b> Mi	ked gender ar	nd mixed attainn	nent grou	p activities a	and group						
to support student	presentati	ion.												
teachers in achieving the	E-learning	gopportunity	and Independ	dent study: W	atching short vi	deos, anir	nations and							
learning outcomes.	simulation	ns from YouTu	ube and other	online resour	ces on the appro	priate wa	ays of storing	g various						
	types of le	earning resou	rces to consoli	date the know	wledge and unde	erstanding	g of student	teachers						
<ul> <li>Overarching</li> </ul>	Student to	eachers would	d be able to ide	entify and exp	olain the type of	resources	and the ne	ed for						
outcome, what you	their appr	opriate stora	ge. It is expect	ed that stude	nt teachers wou	ld be able	to conduct	SEN and						
want the students to	gender au	idit or evaluat	tion of learning	g resources us	sing checklist. Fu	rthermor	e, student te	eachers						
achieve, serves as	would be	expected to d	demonstrate th	ne appropriat	e ways of storing	g the vario	ous types of	resources.						
basis for the learning	With this	would be expected to demonstrate the appropriate ways of storing the various types of resources.  With this knowledge and experience, student teachers would be able to identify appropriate												
outcomes. An	learning re	esources to b	e used in inclu	sive upper ea	rly grade classro	oms durii	ng STS, and i	use						
expanded version of	appropria	te ways of sto	oring them afte	er their use. It	is expected tha	t core and	d transferabl	le skills						
the description.	including	gender, equit	y, diversity, co	llaboration, t	eam work, comr	nunicatio	n, reflective	including gender, equity, diversity, collaboration, team work, communication, reflective practice						
<ul> <li>Write in full aspects</li> </ul>		_		oed among st	udent teachers a	it the end	of the lesso	and critical thinking would be developed among student teachers at the end of the lesson (NTS						
of the NTS addressed								on (NTS						
<ul> <li>Learning Outcome</li> </ul>								-						
	Learning (	Outcomes	Lear	ning Indicator	·s	Identify	which cross	-						
for the lesson, picked		Outcomes	Lear	ning Indicator	·s	issues –	core and tr	s cutting ansferable						
		Outcomes	Lear	ning Indicator	·s	issues – skills, in	core and track	s cutting ansferable Juity and						
for the lesson, picked and developed from the course		Outcomes	Lear	ning Indicator	rs	issues – skills, in address	core and tracking clusivity, equing diversity	s cutting ansferable juity and y. How						
for the lesson, picked and developed from the course specification		Outcomes	Learn	ning Indicator	rs	issues – skills, in address will the	core and tracking clusivity, equipment in the control of the contr	s cutting ansferable juity and y. How						
for the lesson, picked and developed from the course		Outcomes				issues – skills, in address will the develop	core and tracking to the comment of	s cutting ansferable quity and y. How ssed or						
for the lesson, picked and developed from the course specification	Demonstr	ate knowledg	ge and • I		pes of learning	issues – skills, in address will the develop	core and tracking clusivity, equipment in the control of the contr	s cutting ansferable quity and y. How ssed or						
for the lesson, picked and developed from the course specification  • Learning indicators	Demonstr understan	rate knowledg	ge and • If	Explain the tylesources suit	pes of learning able for	issues – skills, in address will the develop • Inte	core and tracelusivity, equing diversity see be addressed? egration of 10 ising short v	s cutting ansferable quity and y. How ssed or  CT by ideos						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstr understan of learning	rate knowledg nding of the ty g resources so	ge and • If pes in the state of	Explain the ty esources suit nclusive uppe	pes of learning able for er early grade	issues – skills, in address will the develop • Inte	core and traclusivity, eq ing diversity se be addressed? egration of I	s cutting ansferable quity and y. How ssed or  CT by ideos						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstr understan of learning for instruc	rate knowledg Iding of the ty g resources su ctional activiti	ge and lypes in its in the initial in the initial in the initial initi	Explain the ty esources suit nclusive uppe classrooms, a	pes of learning able for er early grade nd discuss the	issues – skills, in address will the develop  Inte	core and tracelusivity, equing diversity see be addressed? egration of 10 ising short v	s cutting ansferable quity and y. How ssed or  CT by ideos and other						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstr understan of learning for instruc inclusive u	rate knowledg Iding of the ty g resources su ctional activiti Upper early gr	ge and lypes in itable ies in rade in itable	Explain the ty esources suit nclusive uppe	pes of learning able for er early grade nd discuss the	issues – skills, in address will the develop Inte util from	core and tractusivity, eqing diversity see be addressed? egration of IC ising short von YouTube a	s cutting ansferable quity and y. How ssed or  CT by ideos and other es.						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstr understan of learning for instruct inclusive understand	rate knowledg Iding of the ty g resources si ctional activiti upper early gr is, and the ne	ge and lege	Explain the ty esources suit nclusive uppe classrooms, a	pes of learning able for er early grade nd discuss the	issues – skills, in address will the develop Integration online Coll	core and tractusivity, equing diversity see be addressed? egration of IC ising short vom YouTube at the resource	s cutting ansferable quity and y. How ssed or  CT by ideos and other es. nd						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstr understan of learning for instruct inclusive understand	rate knowledg Iding of the ty g resources su ctional activiti Upper early gr	ge and lege	Explain the ty resources suit nclusive uppe classrooms, an need for their	pes of learning able for er early grade nd discuss the	issues – skills, in address will the develop Integration onli	core and tractusivity, equing diversity see be addressed? egration of 10 ising short von YouTube addressed in eresource laboration a	s cutting ansferable quity and y. How ssed or  CT by ideos and other es. nd through						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstr understan of learning for instruct inclusive un classroom their appr	rate knowledge ading of the ty g resources so ctional activiti upper early gr is, and the ne copriate stora	ge and of the period of the pe	Explain the ty resources suit nclusive uppe classrooms, an need for their	pes of learning able for er early grade nd discuss the appropriate	issues – skills, in address will the develop Inte util fror onli Coll con gro	core and tractusivity, equing diversity see be addressed? Egration of IC ising short von YouTube at ine resource laboration annunication	s cutting ansferable quity and y. How ssed or  CT by ideos and other es. nd through tions.						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstrunderstan of learning for instructinclusive uclassroom their appr	rate knowledged and the tygen resources so the tyge resources so the type rearly greatly greatly and the necessive storage arte knowledged and the decessive resources are the two weeks and the type rearly arte knowledged a	ge and of the property of the	Explain the type sesources suit inclusive upper classrooms, and their storage.  Discuss the apways of storing the storage	pes of learning able for er early grade and discuss the appropriate opropriate g the types of	issues – skills, in address will the develop • Inte util from onli • Coll con gro	core and tractusivity, equing diversity see be addressed?  egration of 10 ising short von YouTube addressed in eresource laboration and in presenta	s cutting ansferable quity and y. How ssed or  CT by ideos and other es. nd through tions. through						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstrunderstan of learning for instructinclusive uclassroom their appr	rate knowledged and the tygen resources so the control of the type rearly greatly greatly and the new topriate storal trate knowledged and ing of the	ge and of the property of the	explain the type resources suit nclusive uppe classrooms, an need for their storage. Discuss the ap ways of storin earning resou	pes of learning able for er early grade addiscuss the appropriate propriate g the types of arces suitable	issues – skills, in address will the develop  Integration onli from onli con gro  Ger fair	core and tractusivity, equing diversity see be addressed?  egration of Idea is a seed?  The YouTube a seed in eresource laboration and in the presentance of the presentance in equity.	s cutting ansferable quity and y. How ssed or  CT by ideos and other is. nd i through tions. through						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstrunderstan of learning for instructinclusive uclassroom their appropria	rate knowledged adding of the tygg resources so the citional activition and the new copriate storal arate knowledged adding of the te ways of storal arate knowledged adding of the te ways of storal arate knowledged adding of the te ways of storal arate knowledged adding of the te ways of storal arate knowledged adding of the te ways of storal arate knowledged adding of the te ways of storal arate knowledged adding the terms of the transfer are the control ar	ge and of the property of the	Explain the typesources suit nclusive upper classrooms, and their storage.  Discuss the appropriate appropriate of storing earning resources to inclusive upper sources.	pes of learning able for er early grade addiscuss the appropriate propriate g the types of crees suitable pper early	issues – skills, in address will the develop  Interview online Coll con gro  Ger fair tear	core and tracticusivity, equing diversity seed? egration of IC ising short various resource laboration and annunication up presentander, equity distribution	s cutting ansferable quity and y. How ssed or  CT by ideos and other es. nd i through tions. through of arning						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstrunderstan of learning for instruction inclusive unclassroom their appropriation of the control of the c	rate knowledgeding of the tygeresources so citional activitions, and the new copriate storal rate knowledgeding of the teways of stopes of learning	ge and of ge and of ge and of ge.  ge and of g	explain the type resources suit nclusive uppe classrooms, an need for their storage. Discuss the ap ways of storin earning resou	pes of learning able for er early grade addiscuss the appropriate propriate g the types of crees suitable pper early	issues – skills, in address will the develop  Interview online con gro  Ger fair tear opp	core and tractusivity, eqing diversity see be addressed? egration of Idissing short von YouTube addressed aboration and annunication up presentander, equity distribution ching and lessed and the control of the core and the cor	s cutting ansferable quity and y. How ssed or  CT by ideos and other es. nd i through tions. through of arning and out						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstrunderstan of learning for instructinclusive uclassroom their appropriation of the properties o	rate knowledged and ing of the tyg resources so the citional activition and the new copriate storal arate knowledged in the teways of stopes of learning used in inclusion.	ge and vpes in control of the contro	Explain the typesources suit nclusive upper classrooms, and their storage.  Discuss the appropriate appropriate of storing earning resources to inclusive upper sources.	pes of learning able for er early grade addiscuss the appropriate propriate g the types of crees suitable pper early	issues – skills, in address will the develop • Intervention onli con gro • Ger fair tear opp of con skills in the skills of contact	core and tractusivity, eqing diversity see be addressed? egration of Idissing short von YouTube at an eresource laboration an enunication up presentander, equity distribution ching and leportunities in	s cutting ansferable quity and y. How ssed or  CT by ideos and other as. and through tions. through of arning and out aclusivity,						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstrunderstan of learning for instructinclusive uclassroom their appropriation of the properties o	rate knowledgeding of the tygeresources so citional activitions, and the new copriate storal rate knowledgeding of the teways of stopes of learning	ge and of the property of the	Explain the typesources suit nclusive upper classrooms, and their storage.  Discuss the appropriate appropriate of storing earning resources to inclusive upper sources.	pes of learning able for er early grade appropriate oppropriate g the types of contract suitable pper early oms.	skills, in address will the develop  Interview online con gro Ger fair tear opp of con and	core and tractusivity, eqing diversity see be addressed?  egration of Idissing short von YouTube at the resource laboration annunication up presentander, equity distribution ching and leportunities in classroom,	s cutting ansferable quity and y. How ssed or  CT by ideos and other as. and through tions. through a of arning and out aclusivity, arough						
for the lesson, picked and developed from the course specification  • Learning indicators for each learning	Demonstrunderstan of learning for instructinclusive uclassroom their appropriation of the properties o	rate knowledged and ing of the tyg resources so the citional activition and the new copriate storal arate knowledged in the teways of stopes of learning used in inclusion.	ge and of ge and of ge and of ge and of ge.  ge and of g	Explain the ty, resources suit nclusive upper classrooms, and their storage.  Discuss the appropriate	pes of learning able for er early grade appropriate oppropriate g the types of contract suitable pper early oms.	issues – skills, in address will the develop  Interview online con gro Ger fair tear opp of con ack	core and tractusivity, eqing diversity see be addressed?  egration of Idissing short von YouTube at the resource laboration and up presentander, equity distribution ching and lecortunities in lassroom, in I diversity the	s cutting ansferable quity and y. How ssed or  CT by ideos and other as. nd a through tions. through a of arning and out aclusivity, urough nt of						

	Demonstrate knowledge and understanding of the appropriate ways of conducting SEN and gender evaluation/ audit of learning resources for inclusive upper early grade classrooms, using checklist.		learning resources for inclusive upper early grade classrooms, using checklist	Reflection and critical thinking for self-awareness through multi and varied interactive strategies that would support learners with diverse characteristics.		
Topic Title: Handheld Technologies (Mobile and Wireless Learning)	Sub-topic Stage/time		Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.  Teacher Activity Student Activity			
	The meaning, properties, relevance and use of handheld technology in creating communicatio n, and teaching and learning applications.	40 minutes  40 minutes  30 minutes	Face-to-face: Use questioning to review student teachers' relevant previous knowledge to discuss the types of learning resources suitable for instructional activities in inclusive upper early grade classrooms (PD Theme 2; pp. 5-14). Use questioning and tutor-led discussion to elicit views of student teachers on the need for appropriate storage of learning resources suitable for inclusive upper early grade classrooms (PD Theme 2; pp. 5-14; PD Theme 3; pp. 75-82, theme 5).  Independent Study and Seminar: Use mixed gender and mixed attainment small groups to enable student teachers discuss the appropriate ways of storing various types of learning resources suitable for inclusive upper early grade classrooms(PD Theme 4; pp. 27-44).  E-learning Opportunity and Independent Study: Showshort videos, animations and simulations from YouTube and other online resources on the appropriate ways of storing various types of learning resources to consolidate the knowledge and understanding of student teachers (PD Theme 5; pp. 29-60).	Face-to-face Student teachers respond to questions and share their views to contribute to the discussion on the types of learning resources suitable for instructional activities in inclusive upper early grade classrooms.  Through tutor-led discussion, student teachers share their knowledge and understanding of the need for appropriate storage of learning resources suitable for inclusive upper early grade classrooms.  Independent Study and Seminar: In mixed gender and mixed attainment groups, student teachers discuss the appropriate ways of storing various types of learning resources suitable for inclusive upper early grade classrooms. Student teachers present their group work using power point.  E-learning Opportunity and Independent Study: Student teachers watch short videos, animations and simulations from YouTube and other online resources on the appropriate ways of storing various types of learning resources to deepen their understanding of appropriate ways of storing learning resources. Comments, clarifications and tactile analysis are made after watching the short videos.		

			Face-to-face:	Face-to-face			
			Use questioning and tutor-led discussion to enable student	Through tutor-led discussion and questioning, student			
			teachers discuss the criteria for	teachers discuss the criteria			
			evaluating resource suitable for	for evaluating resource			
			learners with diverse needs(PD	suitable for learners with			
			Theme 2; pp. 5-14; PD Theme 3;	diverse needs in upper early			
			pp. 75-82).	grade classrooms.			
	Review and	40 minutes	Face-to-face	Face-to-face			
	summary of course		Use talk for learning approaches to guide student teachers in	Respond to questions and ask relevant questions related to			
	course		reviewing the course taking note	misconceptions and			
			of key issues.	misunderstanding of			
			Guide student teachers address	concepts.			
			misconceptions and				
			misunderstanding of concepts in				
			the course.				
Lesson assessments –	In-lesson Assess		ng nower neint to present ways of s	toring various types of learning			
evaluation of learning: of, for and as learning within	-		ng power point to present ways of s upper early grade classrooms	toring various types of learning			
the lesson	resources suitab	ie ioi iliciasive	apper carry grade classicoms				
Instructional Resources	TESSA (	2016). Inclusiv	e education tool kit. Walton Hall: Un	ited Kingdom			
	·		Education and Learning (2016). Tea	=			
	-		nent guide for tutors. Accra. Ministry				
		_	Education and Learning (2016). Gro				
			r tutors. Accra. Ministry of Education				
		-	Education and Learning (2016). Talk				
			r tutors. Accra. Ministry of Education				
	<ul> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials:         Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).     </li> <li>Transforming Teacher Education and Learning (2016). Questioning: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> </ul>						
	<ul> <li>YouTub</li> </ul>						
Required Text (core)			gy guide for teaching & learning. Iba	dan-Nigeria: His Lineage			
	Publishing House		nako B M (2016) Fundamentals of	educational technology for			
	<ul> <li>Amoah, S. A., Laryea, P., &amp; Amoako, B. M. (2016). Fundamentals of educational technology for effective teaching and learning. Winneba: UEW Press.</li> <li>Gagne, R. M. &amp; Briggs, L. J. (1979). Principles of instructional design (2<sup>nd</sup> ed.). New York: Holt, Rinehalt, &amp; Winston.</li> <li>Sarfo, F. K. (2008). Educational technology. Kumasi: Wilas Press Ltd.</li> <li>Transforming Teacher Education and Learning (2016). Teaching and learning materials: Professional development guide for tutors. Accra. Ministry of Education (www.t-tel.org).</li> </ul>						
Additional Reading List							
Additional reduing biot	Driscoll, M.P. (2005). <i>Psychology of learning for instruction</i> . Boston: Pearson Education Inc. Rowntree, D. (1982). <i>Educational technology in curriculum development</i> . London: Harper and						
	Row. Smaldino, S.E., Lowther, D.L., & Russell, D.J. (2008). <i>Instructional technology and media for learning</i> (9 <sup>th</sup>						
CDD noods	ed.). Upper saddle River, NJ: Engle Cliff Woods  Workshops on the use of digital literacy (audio-visual and tactile analysis), PD Theme 2; PD Theme						
CPD needs	3; PD Theme 4; I	_	n nteracy (audio-visual and tactile ar	iaiysis), Pu Theme 2; Pu Theme			
			lio Assessment (30% overall score)				
	-	-	lents work (3 of them -10% each) = 3	30%			
		n assessment :					
		ve Journal = 40					
	Organisation of the subject portfolio = 10% (how it is presented /organised)						
	I		t: (30% overall semester score)				

 $<sup>^3</sup> See$  rubrics on Subject Portfolio Assessment in Annex 6 of NTEAP  $^4 See$  rubrics on Subject Project Assessment in Annex 6 of NTEAP

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

Component 3: End of Semester Exams 40%

