

Four-Year B.Ed. Course Manual

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TreGoemertofChara



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FOREWORD

These initial teacher education course manuals were developed by a team consisting of members from colleges of education, and four universities namely, university of Ghana, Kwame Nkrumah university of science and technology, university of education, Winneba, and university of development studies. this team was constituted to support the delivery of the new B.Ed. curriculum as part of Ghana's teacher education reforms supported by T-Tel with assistance from UK aid and overseen by the National Council for Tertiary Education (NCTE).

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

The structure and sequence of the manuals follows a process developed through a collaboration by key stakeholders. The first section is focused on the course information and vision for the new four-Year B.Ed. curriculum. The second section presents the course details, Goal for the subject or learning area, course description, Key contextual factors as well as core and transferable skills and cross-cutting issues, including equity and inclusion which will be addressed through the course. the third section is a list of course learning outcomes and their related learning Indicators. the fourth section presents the course content which is broken down into units for each week, the topic and sub-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. The relevant aspects of the national Teachers' standards to be assessed through each assessment are identified. each course is accompanied by the required reading and reference lists as well as teaching and learning resources. The final section presents course related professional development for tutors and lecturers to be able to use each section of the manual.

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

field instructions to guide supported teaching in school are integrated into the course manuals to provide the student teacher with the nucleus of practicing and developing teaching throughout the entire period of study to be able to meet the requirements of the NTS and the National Teacher education curriculum framework (NTECF). To ensure maximum benefit the course manuals should be used in addition to other resources such as the NTS, NTCEF, assessment Policy and inclusion Policy. This will help to ensure that learning by student teachers' is integrated within the wider teacher education policy framework.

Professor Mohammed Salifu Executive Secretary

National Council for Tertiary Education

ACKNOWLEDGEMENTS

The course Manuals were developed over several months 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 of development studies. they were produced in association with the national council for tertiary education 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 national council for Tertiary education, (NCTE) 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, Prof. Mohammed Salifu the executive secretary of NCTE 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.

CORE WRITING TEAM

Names of writers	Subject	Names of writers	Subject
Dr. Isaac Eshun		Cletus Ngaaso	Social Studies
Dr. Anthony Baabereyir		Mohammed Adam	
Ms. Shirley Dankwa	African Studies	Dr. Emmanuel Adjei-Boateng	
Prof. S.Y. Annor	Agriculture	Dr. Yaw Nyadu Offei	Special Education
Dr. Salome praise Otami		Prof. Samuel Hayford	
Dr. Samuel Frimpong		Dr. Awuni	
Robert Quansah	Early Grade	Rev.(Dr) Nyueko Avotri	Technical
Dr. Abraham Kwadwo Okrah	English Language	Elizabeth Lani Ashong	Vocational
Vivian Acquaye		Michael Tsorgali	Education and
Felix A. Odonkor		Frnacis Donkor	Training
Dr. Cecilia Esinam Agbeh		Dr. Maxwell Nyatsikor	
Ibrahim Osmanu	French	Prof. Salomey Essuman	
Dr. Kofi Adu-Boahen		Dr. Paul Kwadwo Addo	
Dr. M. Kusimi		Dr. Winston Kwame	
		Abroampa	
Dr. Aboagye Dacosta		Mr. Kwaku Esia-Donkoh	
Mr. Alexander Otoo	Geography	Mohammed Z. Abdulmumin	Pedagogy
Dr. Yvonne A.A. Ollennu	Ghanaian	Dr. Mohammed Hafiz	Arabic
Kwasi Adomako	Language	Iddris Mohammed	
Dr. Akwasi Kwarteng			
Amoako-Gyampah		Mohammed Almu Mahaman	
Anitha Oforiwah Adu-			
Boahen		Murtada M. Muaz	
Gertrude Nkrumah	History	Dr M. Q. Adjahoe	Music
Prof Charles Owu-Ewie	Literacy	Prof Cosmas Mereku	
Dr. Ahmed Amihere		Prof. Reginald Ocansey	Physical Education
Zakaria Sadiq	Mathematics	Dr. Emmanuel Osei Sarpong	
Dr. R. Addai-Mununkum		E. Kwaku Kwaa-Aidoo	ICT
Dr Charles Nyarko Annobil		Victor Anyamful	
Mr. Owusu Afiriyie	RME		
Dr. V. Ankamah-Lomotey			
Jonathan Ayelsoma Samari			
Prof. Ruby Hanson	Science		

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

A Course Information

A.COL	Irse	informat	ion					
Title Page								
i. The vis	sion for tl	he New Four-Yea	r B.Ed. Cui	rriculum				
To transform in	itial teach	ner education and	l train high	nly qualified, motiva	ated nev	w teachers who a	are effecti	ive, 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	as set out in the National Teachers' Standards. In doing this to instil in new teachers the Nation's core values of honesty,							
integrity, creativ	vity and r	esponsible citizer	nship and t	o achieve inclusive	, equita	ble, high quality	educatior	n for all learners
ii. Course	e Details							
Course name	LEGAL A	AND SECURITY ISS	UES IN ICT					
Pre-requisite	TECHNO	DLOGY LEADERSH	IP AND MA	ANAGEMENT				
Course Level	400	Course Code		Credit Value	3	Semester	2	
Table of conten	its							
1. Goal fo	or the Sul	bject or Learning	Area					
This course prov	vides und	lerstanding of the	fundamei	ntals of information	n securit	ty. This will be ac	complishe	ed by defining key
terms, explainir	ng essenti	ial concepts, and	providing	the knowledge and	unders	tanding of inform	nation sec	curity. The course will
also discuss acc	ess contr	ol devices commo	only deploy	yed by modern ope	rating s	systems, and new	<i>i</i> technolo	ogies that can provide
strong authenti	cation to	existing impleme	ntations. (National Teachers	' Stando	ard: 2c, 2e, 3a, 3	e, 3h, 3i, 3	3k, 3p/ NTECF: Pillar 1,
2 & 3, crosscutt	ing issue	s; Core skills, Ass	essment.					
2. Key co	ntextual	factors						
There is a high	mobile c	communication de	evice own	ership in the Ghan	aian so	ciety. Most stud	ents and	teachers have interest
and experience	in using	these devices for	r social an	d personal interact	ions. H	owever, the inte	gration of	f ICT into teaching and
learning is low	in Ghar	naian schools. Gl	nanaian so	chools can be cate	egorised	d as low techno	logy-rich	learning environment
particularly in th	he public	schools.						
The following at	ffect effe	ctive teaching and	d account i	for this low integra	tion of I	CT in teaching ar	nd learnin	g:
a. There is an in	tra-natio	nal digital divide	(Rich/Poor	, Male/Female, Urb	ban/Rur	al, SEN/Typical)		
b. Generally, th	ere is low	internet connect	tivity espec	cially in the rural co	mmuni	ties.		
c. Most schools	lack com	puting facilities.						
d. Some schools	s do not h	have electricity su	pply					
e. Existing facilit	ties do no	ot favour people v	with disabi	lity				
Student teachei	rs will be	prepared with te	chnology i	ntegration strategie	es in the	e classroom as w	ell as the t	theories thereof.
3. Course	e Descript	lion	nc and cat	agarizations of fire	wall too	hand aging and th	o orchito	aturas undar which
firewalls may be	mines the	e various definitio	ns and cat	egorizations of fire	wall tec	chnologies and tr	le archite	the intrusion and the
firewalls may be	e deploye	a. The course als	o discusse	s security technolog	gies by (examining the co	incept of t	the intrusion, and the
technologies ne	ecessary t	o prevent, detect	, react, and	a recover from intr	usions.	Specific types of	Intrusion	ional laws that guide
the field and us		and procents a de	s, network	mination of the cor	onutor.	othics that the up	sore and the	hose who implement
information sec	e or icr, a	and presents a de		chers' Standard: 10	16 26	2c $2o$ $2d$ $2n/l$	NTECE Dil	llar crosscutting
intornation sec	llc Drofo	science volues and	d attituda	This course will be	, 10, 30	, <i>SC, SE, SU, SII</i> , I	viller. Fil	ussions cominars and
nresentation of	the varie	sional values and	udent-tea	chars. The course will i	ill bo a	sessed through	assignme	nts auizzes and
		valuate student-t	achers' u	nderstanding and k	nowled	ssesseu tinougn	assignine n socurity	rits, quizzes anu
	nd transf	erable skills and	cross cutti	na issues including	n equity	and inclusion	in security	
Digital literacy	of studen	t teachers will be	enhanced	l by giving them on	nortuni	ties to surf and n	resent inf	formation across units
using various di	gital tool	s	ennancea	by giving them op	portum			
Critical thinking	is develo	oned in student te	eachers wł	nen they collect dat	a analı	/se and reflect or	n interven	tions
Collaboration is	s fosterer	through assignin	ig groun ni	rojects and present	ation of	f various tonics a	cross unit	s and encouraging a
healthy school-	communi	ty relationship	ים אייס ים סי	ojecto ana present			5. 555 unit	a and chood uping u
Communicative	skills of	student teacher v	would he e	nhanced through t	he exan	nination interro	gation and	d presentation of their
misconcentions	and phile	osophies			e exul			
Personal develo	opment &	& Enquiry skills in	action res	earch would be for	stered a	cauiring skills fo	r collectin	g data, analysing and
initiating interve	entions for	or individual child	ren and sn	nall groups.			. soncern	o satu, ana joing and
Respect for div	ersitv and	d Individual diffe	rences wo	uld be engendered	in stude	ent teachers by a	ipplving a	ppropriate
interventions e	xamining	and reflecting th	eir usefulr	less		ent teachers by b	יייניאא.	PP. 9911000
Honesty and Ac	countabi	ility would be fos	tered by st	tating the regulation	ns rega	rding fair use as y	well as. pr	resentation of a
project report o	on compli	ance with accepta	able use po	olicies and other gu	idelines	5.	- <u>-</u> , la.	

5. Course Learning Outcomes			Indicators The following will be used to measure the achievement of the learning outcomes		
CLO1 Unde	rstand the principles of		1.1 Explain Information security concepts.		
Information	n security concepts.	2			
(NIS 20, 20 NTECE: Pill	, 3D, 3C, 3A, 3e, 3N, 3I, 3K ars 1 - 2 & 3 crosscutting	, 3n, 3p issues:			
Core skills.	Assessment. Professiona	l values			
and attitua	les)				
CLO2:Asses	ss/evaluate the security st	atus of	2.1 Assess the ri	isks and identify vulnerabilities of information assets	
information	n systems.		Recommend app	propriate protection for information assets	
(NTS 2b, 2c	, 3b, 3c, 3d, 3e, 3h, 3i, 3k	, 3n, 3p			
Core skills.	Assessment. Professiona	l values			
and attitua	les)				
CLO3:Demo	onstrate knowledge ar	nd apply	3.1 Implement s	security controls to reduce the risks to information assets.	
different se	ecurity control systems t	o protect			
information	n systems (NTS 2b, 2c, 3 2k, 2n, 2n NTECE: Dillars	b, 3c, 3d,			
se, sn, si,	а issues [.] Core skills Ass	1, 2 & 3, sessment			
Profession	al values and attitudes)	jessinent,			
CLO 4: Dem	nonstrate compliance of s	tatutory,	4.1 Explain the le	egal issues and implications associated with use of ICT	
regulatory	and institutional ICT requ	irements.			
(NTS 1a, 1b), 1c, NTECF: Pillar 4, cros	scutting			
issues, Proj	urse Content	udesj			
Unit/	Торіс	Sub-topic	(if any)	Teaching and learning activity to achieve the learning	
Week	•	•	· //	outcomes	
1	Security fundamental I	1.1 Inform	nation Security		
		Principles	C 1		
		1.1.1C0 1.1.2 Int	nfidentiality,		
		1.1.3 Av	ailability	Use interactive multimedia presentations to introduce	
				student-teachers to Information Security Principles (C.I.A).	
				Seminars (Talk for Learning) & interactive discussions	
				From YouTube) to introduce Information Security Principles	
				(C.I.A).	
.2	Security fundamental	2.1 Secur	ity Concepts	Use interactive multimedia presentations to introduce	
		2.1 Vulr	erabilities	student-teachers to Security Concepts, Vulnerabilities,	
		2.3 Thre	eats	Threats, Threat Actors, Exploits	
		2.4 Thre	at Actors	and Risk. Seminars (Talk for Learning) & interactive	
		2.5 Expl	oits	discussions (Games) to further examine the methodologies	
		2.0 NISK		elaborate the advantages/disadvantages of Security	
				Concepts, Vulnerabilities, Threats, Threat Actors, Exploits	
				and Risk.	
3	Access Control	3.1 Subje	ct and Object	Use Project-/problem- Based (Individual/Group Work) to	
	Fundamentals	Definition) 	analyzeSubject and Object Definition, Accountability	
	(Introduction to	3.2 Accou	fication	process, Identification, Authentication, Authorization, and	
	process) I	3.4 Authe	ntication	problem. Use inquiry-based learning (Questioning) seminars	
	P. 00007 1	3.5 Autho	rization	(Talk for Learning), interactive discussions (Games),	
		3.6 Auditi	ng	interactive multimedia presentations, tutorial and practical	
				sessions, video analysis e.g. YouTube to discuss, Subject and	
				Object Definition, Accountability process, Identification,	
				Authentication, Authorization, and Auditing.	

4	Access Control Fundamentals (Authentication types) II	 4.1 Authentication by Knowledge 4.2 Authentication by Ownership 4.3Authentication by Characteristic 	Use Project-/problem- Based (Individual/Group Work) to analyzeAuthentication by Knowledge, Authentication by Ownership, and Authentication by Characteristic. Use inquiry-based learning (Questioning) seminars (Talk for Learning), interactive discussions (Games), interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to discuss Authentication by Knowledge, Authentication by Ownership, and Authentication by Characteristic.
5	Access Control Fundamentals (Authentication methods) III	5.1 mechanisms for authentication(Multifacto r Authentication)	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to mechanisms for authentication (Multifactor Authentication). Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of mechanisms for authentication (Multifactor Authentication).
6	Access Control Fundamentals (Authorisation & auditing methods) IV	6.1 Authorization 6.2 Auditing	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to Authorization, and Auditing. Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of Authorization, and Auditing.
7	Types of Information security controls (Logical Controls) I	 7.1 Logical controls Traditional Firewalls Packet-Filtering Techniques Application Proxies Network Address Translation Port Address Translation 	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to Logical controls (Traditional Firewalls, Packet- Filtering Techniques, Application Proxies, Network Address Translation, and Port Address Translation). Use inquiry- based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of Logical controls (Traditional Firewalls, Packet-Filtering Techniques, Application Proxies, Network Address Translation, and Port Address Translation).
8	Types of Information security controls (Physical & Administrative controls) II	8.1 Physical controls8.2 Administrativecontrols (ICT policies and administrative processes& procedures)	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to Physical controls, and Administrative controls (ICT policies and administrative processes & procedures).Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of Physical controls, and Administrative controls (ICT policies and administrative processes & procedures).
9	Legal issues (Introduction, Child & Data protection) I	9.1 Cyberspace PrivacyLaws and Issues9.2 Child Protection Laws9.3 Data protection laws(data protection Act 843)	Use interactive multimedia presentations, tutorial and practical sessions, video analysis e.g. YouTube to introduce students to Cyberspace Privacy Laws and Issues, Child Protection Laws, and Data protection laws (data protection Act 843). Use inquiry-based learning (Questioning), seminars (Talk for Learning), interactive discussions (Games) to support deeper understanding of Cyberspace Privacy Laws and Issues, Child Protection Laws, and Data protection laws (Data protection Act 843).
10	Legal issues (Electronic Communications) II	10.1 Electronic communications laws (electronic communications act 775)	Use interactive multimedia presentations to introduce student-teachers to Electronic communications laws (electronic communications act 775). Seminars (Talk for Learning) & interactive discussions (Games) to further examine the models, video analysis (e.g. From YouTube) to examine Electronic communications laws (electronic communications act 775).

	Legal issues (Contracts) III	11.1Law of Contract (Act 25, 1960)	Use interactive multimedia presentations to introduce student-teachers to Law of Contract (Act 25, 1960). Seminars (Talk for Learning) & interactive discussions (Games) to further examine the models, video analysis (e.g. From YouTube) to examine Law of Contract (Act 25, 1960).				
12	Legal issues (Anti- spam & privacy) IV	12.1 Anti-Spam laws Analyze Privacy policies Opt in vs Opt out International impact on privacy policies Legality and ethics of spyware and other malware Privacy vs civil liberties RFID (Radio Frequency ID) issues	Use interactive multimedia presentations to introduce student-teacher to Anti-Spam laws (Analyze Privacy policies). Seminars (Talk for Learning) & interactive discussions (Games) to further examine the concepts, video analysis (e.g. From YouTube) to elaborate Anti-Spam laws (Analyze Privacy policies).				
7. Te	aching and Learning Strat	tegies					
 In Co Co Th Ta et 	 Individual and group presentations Concept cartoons and concept maps Cooperative learning Think-pair-share Talk for learning approaches- always, sometimes, never true, convince yourself, convince a friend; pyramid discussion 						
8. Co	ourse Assessment Compor	nents					
Componen	t 1: Portfolio Assessment	: (30% overall score)					
• Se	elected items of students v	work (3 of them – 10% each)	- 30%				
• IVI • Re	Allerin Assessment – 20%						
- 110	 Reflective Journal – 40% Organisation of subject portfolio – 10% (how it is presented/organized) 						
• OI	rganisation of subject por	tfolio – 10% (how it is presen	ted/organized)				
• OI	ganisation of subject por	tfolio – 10% (how it is presen	ted/organized)				
• Or Summary of	rganisation of subject port	tfolio – 10% (how it is presen	ted/organized)				
• Or Summary of Create e-po	rganisation of subject port of Assessment Method: ortfolios to contain but no T Security and ICT law doo	tfolio – 10% (how it is presen ot limited to	ted/organized)				
• Or Summary of Create e-po a. IC b. Ol	rganisation of subject port of Assessment Method: ortfolios to contain but no T Security and ICT law doo oservation of school visit.	tfolio – 10% (how it is presen ot limited to cuments developed from pro	ted/organized) jects.				
Or Or Summary of Create e-por a. IC b. Ol c. re	rganisation of subject port of Assessment Method: ortfolios to contain but no T Security and ICT law doo oservation of school visit. flective notes on applicati	tfolio – 10% (how it is presen ot limited to cuments developed from pro- ion of ICT security and law	ted/organized) jects.				
Oreate e-po a. IC b. Ol c. re d. Pr	rganisation of subject por of Assessment Method: ortfolios to contain but no T Security and ICT law doo oservation of school visit. flective notes on applicati esentations from Video A	tfolio – 10% (how it is presen ot limited to cuments developed from pro- ion of ICT security and law nalysis, individual and group	ted/organized) jects. work on ICT security and Law concepts.				
Our Summary of Create e-po a. IC b. OI c. re d. Pr e. Te	rganisation of subject port of Assessment Method: ortfolios to contain but no T Security and ICT law doo oservation of school visit. flective notes on applicati esentations from Video A ests/quizzes and class exer-	tfolio – 10% (how it is presen ot limited to cuments developed from pro- ion of ICT security and law nalysis, individual and group rcises to examine	ted/organized) jects. work on ICT security and Law concepts.				
Oreate e-po Create e-po a. IC b. Ol c. re d. Pr e. Te f. As	rganisation of subject port of Assessment Method: ortfolios to contain but no T Security and ICT law doo oservation of school visit. flective notes on applicati resentations from Video A ests/quizzes and class exer- signments and group wor	tfolio – 10% (how it is presen ot limited to cuments developed from pro- ion of ICT security and law nalysis, individual and group rcises to examine rk to evaluate their understau	ted/organized) jects. work on ICT security and Law concepts. nding technology leadership and management concepts				
Oreate e-por a. IC b. OI c. re d. Pr e. Te f. As Weighting: Assesses	rganisation of subject port of Assessment Method: ortfolios to contain but no T Security and ICT law doo oservation of school visit. flective notes on applicati esentations from Video A ests/quizzes and class exer ssignments and group wor a 30% Learning Outcomes: CLO	tfolio – 10% (how it is presen ot limited to cuments developed from pro- ion of ICT security and law nalysis, individual and group rcises to examine rk to evaluate their understar 3, CLO 4	ted/organized) jects. work on ICT security and Law concepts. nding technology leadership and management concepts				
 Or Summary of Create e-por a. IC b. Ol c. re d. Pr e. Te f. Ass Weighting: Assesses Component In M Su Contact of the second secon	rganisation of subject port of Assessment Method: ortfolios to contain but no T Security and ICT law doo oservation of school visit. flective notes on applicati esentations from Video A ests/quizzes and class exer signments and group wor c 30% Learning Outcomes: CLO to 2: Subject Project (30% troduction a clear statement ethodology: what the stur obstantive or main section onclusion – 30%	tfolio – 10% (how it is presen of limited to cuments developed from pro- tion of ICT security and law nalysis, individual and group rcises to examine rk to evaluate their understan 3, CLO 4 overall semester score) ent of aim and purpose of the dent teacher has done and w a – 40%	ted/organized) jects. work on ICT security and Law concepts. nding technology leadership and management concepts e project – 10% rhy to achieve the purpose of the project – 20%				

Weighting: 30% Assesses Learning Outcomes: CLO 3, CLO 4

Component 3: End of Semester Examination – 40% overall
Summary of Assessment Method:
A written assessment to assess student teacher's basics of information security and IT related legal issues knowledge and
understanding the various concepts of technology leadership and management
Weighting: 40 %
Assesses Learning Outcomes: CLO1, CLO2
9. Required Reading and Reference List
Whitman, Michael E., and Herbert J. Mattord. <i>Principles of information security</i> (4 th ed.). Cengage Learning, 2011.
Parliament of Ghana (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana Data Protection Commission website:
https://www.dataprotection.org.gh/data-protection-act
Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from website: <u>https://www.moc.gov.gh/</u> ,
https://nca.org.gh/
Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from <u>http://laws.ghanalegal.com/acts/id/18/contracts-act</u>
10. Additional Reading List
Anderson, Ross J. Security engineering: a guide to building dependable distributed systems. John Wiley & Sons, 2010.
Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy etc)
11. Teaching and Learning resources
Smartphones
Laptops
Desktop computers
Tablets
TV and Radio
 Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, TESSA)
The iBox (CENDLOS)
Productivity tools
Subject based application software
 Instructional Laboratories (with multimedia equipment and smartboards)
Google Classroom
12. Course related professional development for tutors/ lecturers
Development of Concept Maps/ Concept cartoons Charts/ technical/action research report writing.
• Appreciating the place of cross cutting issues in the CLOs and Teaching -Learning Activities/ Assessment component
requirement for active learning/ model teaching to reflect the desired PCK student – teachers require to learn for
teaching.

Ye	ear of B.Ed.	4	Semeste	r 2	Place o	of less	on in semes	ter	1234	5678910	11 12	
Titl	e of Lesson		Security fur	ndamentals I					Lesson Duration	3 Hours		
Les	son descriptio	n	In this less	In this lesson, Student teachers will be introduced to security fundamentals I. It assumes							assumes	
			student-tea	student-teachers have prior knowledge on computer security. This first lesson introduces								
			student tea	achers to the	course le	earnin	g outcomes	and t	he 3 assessm	nent componen	its of the	
			course.(Na	tional Teache	ers' Stand	dard:	1a, 1b, 3b,	3c, 3	e, 3d, 3n/N1	ECF: Pillar cro	sscutting	
	· · · ·		issues; Core	e skills, Profes	sional va	ilues a	ind attitudes	5).				
Pre	vious student	teacher	Student tea	achers have ta	ken the A	Applica	ation Develo	pmen	t in Educatior	n course.		
kno	wiedge, prior	learning										
(ass	sumed) scible barriors t	ha	Somo stud									
lea	rning in the les	son	Security in	Education and	l its imna	ot nav	teaching and	llearr	e and unders	stanung of im	ormation	
	son Delivery –	chosen	Face-to-	Practical	Work-		Seminars	Inde	nendent	e-learning	Practic	
tos	support studen	nts in	face [V]	Activity	Based		[1]	Stuc		opportuniti	um	
ach	ieving the out	comes		[v]	Leanin	g		0141	., [.]	es		
						0				[v]		
Les	son Delivery	– main		1								
mo	de of delivery	y chosen	Face-to-fac	. e – Both teac	her and	stude	nt-led appro	aches	s such as disc	ussions of vary	ing kinds	
to	support	student	should be u	used.							-	
tea	chers in achie	eving the	E-learning	opportunities	-Student	t teach	ers would w	atch v	videos on You	Tube/videos ab	out	
lea	rning outcome	s.	responsible	e use of techno	ology syst	tems.						
			Seminars –	Both individu	al and gr	oup pr	resentation of	of pro	jects should b	e encouraged.		
			Practical A	ctivity - studen	it teachei	rs will	review work	samp	oles of other s	tudent teacher	s to	
			explain pro	gress or barrie	ers to lea	rning						
			Group wor	k: put student	teachers	s in sm	all groups to	exan	nine various i	ssues both in a	face to	
			face class a	nd also online	. Create a	a socia	al media grou	up for	each group (e.g. Facebook,		
			WhatsApp,	Telegram) to	enable tr	nem in	iteract outsid	de cla	ss using their	mobile or any o	other	
			suitable de	vice	- 6 + 1 1-					f :	a a	
			Independe	nt study: any	of the ac	ove m	h relevant e	inciuc	te an element	. or independen	t study	
			to enable s	ucational Pos	ally enga				li. Tutors to u	a khan acadom	achers	
			TESSA) to s	unnort indene	andent st	.g. iot udv	i i ube, ivioo	C3-00	ienty/courser		ı <i>y,</i>	
•	Overarching		Student Te	achers will ·	indent st	uuy.						
	outcome, w	hat you	Explain Info	ormation secu	rity conce	epts.						
	want the stu	idents to	(NTS 2b, 2c	, 3b, 3c, 3d, 3	e, 3h, 3i,	3k, 3n	, 3p NTECF:	Pillar	s 1, 2 & 3, cro	sscutting issue	s; Core	
	achieve, se	rves as	skills, Asses	ssment, Profes	ssional v	alues d	and attitude	s)		2		
	basis for the	learning										
	outcomes. Ar	ı										
٠	expanded ve	ersion of										
	the description	on.										
•	Write in full	aspects										
	of the NTS ad	dressed										
•	Learning Out	come for	Learning O	utcomes		Le	arning	Id	entify which	cross cutting	issues –	
	the lesson, pi	cked				In	dicators	co	ore and trans	ferable skills, ir	iclusivity,	
	and develope	ed from						e	quity and ad	dressing divers	sity. How	
	the course		CLO1. Und			1 1 5	- la::-	W	III these be ad	aressea or aev	elopea?	
•	specification	cators		erstand the		1.1 EXF	Jidili	A	uquire skills i	in addressing ed	fully and	
•	for each loar	ning	principles C	n information	h 2 c		idliUíl	ge	enuer issues,	use ICI (0015 i develop critical	thinking	
		шв	security col	1000013 (113 21 20 26 2: 21	u, ∠0, S 2n	securit	ly concepts.	ar	iu inclusion, (roblem	solving	unnking,	
	outcome		20, 30, 30, 30, 30, 30, 30, 30, 30, 30, 3	35, 311, 31, 3K, Dillars 1 - 7 9 - 2	511,			pi	oblem	sulving, (reflective	
			crosscuttin	n inurs 1, 2 & 3 n issues: Core	"				ractice	SKIIIS ALLU	enective	
			skille Acco	ssment								
			Profession	al values and								
			attitudes)									

Topic Title:			Teaching and learning activities	to achieve outcomes
		_	depending on the delivery mode	selected. Teacher-led
	Sub-topic	Stage/time	collaborative group work or inde	pendent.
			Teacher Activity	Student Activity
	Introduction	20 mins	Questioning: Tutor uses	Questioning: Student
			questioning to introduce the	teacher answers
			Course Manual and review	questions and explores
			with a computer software used	their experience on now
			in loarning (PDG Thoma 2)	in the past to support
			in learning. (FDG meme 2)	their learning
	Information	20 Mins	e-learning & grounwork	e-learning & groupwork
	Security	20 101113	Tutor shows student teachers	Student teachers watch
	Principles		short videos from YouTube	videos from YouTube
			explaining what Information	explaining what
			security principles means. Class	Information security
			is then put into small diverse	principles means. They
			groups to discuss information	then discuss in their
	Confidentiality		security principles.	groups information
	Integrity			security principles with
	Availability			examples learning drawing
				from their own
				experiences and how
				software can support
				learning in their STS visit.
		120 Mins	e-learning & Face-to-face	e-learning & Face-to-face
			Tutor shows a video on these	Student teacher watches a
			three key information security	
			principles (Confidentiality,	Confidentiality Integrity
			Tutor leads the Student	and Availability) Tutor
			teachers to discuss the	leads the Student teachers
			information security principles	to discuss the information
			(Confidentiality, Integrity, and	security principles
			Availability) considering what	(Confidentiality, Integrity,
			the pros and cons in	and Availability)
			information security principles	considering what the pros
			(Confidentiality, Integrity, and	and cons in the
			Availability). Student teachers	information security
			then discuss in their groups the	principles (Confidentiality,
			tasks they will undertake to	Integrity, and Availability).
			effectively ensure information	Student teachers then
			security principles	discuss in their groups the
			(Confidentiality, Integrity, and	tasks they will undertake
			Availability).	information socurity
				nrinciples (Confidentiality
				Integrity, and Availability)
				Student teachers then
				develop a wiki on
				information security
				principles (Confidentiality,
				Integrity, and Availability)
				implications for teaching
				and learning."

	Lesson Closure	20 Mins	Questioning: Tutor uses questioning to summarise and recap the concepts covered for the lesson	Questioning: Student teacher responds to questions to summarise and recap the concepts covered for the lesson.			
Lesson assessments –		•					
evaluation of learning: of,							
for and as learning within							
the lesson							
Instructional Resources	i. Smartphones						
	ii. Laptops						
	iii. Desktop com	puters					
	iv. Tablets						
	v. TV and Radio						
	vi. Open Educati	ional Resources	s (Including: YouTube, MOOCS-Udem	ny/coursera, khan academy,			
	TESSA)						
	vii. The iBox (CE	NDLOS)					
	viii. Productivity	tools					
	ix. Subject based	d application so	ftware				
	x. Instructional L	aboratories (w	ith multimedia equipment and smar	tboards)			
Required Text (core)	Whitman, Micha	ael E., and Herb	ert J. Mattord. Principles of information	<i>tion security</i> (4 th ed.).			
	Cengag	e Learning, 201	11.				
	Parliament of Gl	Parliament of Ghana (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana Data					
	Protection Commission website: https://www.dataprotection.org.gh/data-						
	protection-act						
	Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from						
	website	e: <u>https://www</u>	.moc.gov.gh/, https://nca.org.gh/				
	Parliament of G	hana. Law of Co	ontract (act 25, 1960), Retrieve from				
	http://laws.ghar	nalegal.com/ac	ts/id/18/contracts-act				
Additional Reading List	Anderson, Ross	J. Security engi	neering: a guide to building dependa	ble distributed systems.			
	Jonn W	liey & Sons, 20	10.				
	Selected articles	and online res	ources (youtube.com, MOOCs: Khan	Academy, TESSA, Udemy			
	etc)						
CPD needs	Need for semina	ar on informatio	on security principles , confidentiality	y, integrity, and availability			
	Participating in a	e notes	foractica (conforances and accessing	onling magazings (E zings)			
	Participating in a	tain un to dato	contant on information cocurity priv	cinica Confidentiality			
	a journals to op	tain up to uate	content on mornation security prin	icipies, connuentiality,			
	Team teaching a	anability	evation to improve instructional stra	tegies & practices			
	Supporting stud	ant teachers in	collaborating in designing and doval	loning a wiki			
1	j supporting stud	ent teachers m	conaborating in designing and devel	oping a wiki.			

Year of B.Ed.	4	Semester2Place of lesson in semester1 2 3 4 5 6 7 8 9 10 11					9 10 11 12				
								1			
Title of Lesson		Security fu	Security fundamental II Lesson Duration 3 Hours								
Lesson descrip	tion	In this less	In this lesson, Student teachers will examine the various security concepts in Information								
		Technolog	Technology.								
Previous stude	ent teacher	Student te	Student teachers have been Introduced to information security principles (Confidentiality,								
knowledge, pr	ior learning	integrity,	integrity, and Availability)								
(assumed)		<u> </u>									
Possible barrie	ers to Josson	Some stud	some student teachers might not have had knowledge and understanding of Security Concepts								
Lesson Deliver	v – chosen	Face-to-	Practical	Work-	Seminars	Independe	ent e-learning	Practicum			
to support stu	dents in	face	Activity	Based	[V]	Study [√]	opportunities				
achieving the	outcomes	[V]	[v]	Leaning			[V]				
Lesson Delive	ry – main										
mode of deliv	ery chosen	Face-to-fa	ace – Both t	eacher and	student-led a	pproaches s	uch as discussions	of varying kinds			
to support	student	should be	used.	ine Student i	toochors woul	d watch vide	os on YouTubo/vida	ac about			
learning outco	meving the	responsib	le use of tech	nology syste	ms	u watch viue		OS about			
		Seminars	– Both indivi	dual and gro	up presentati	on of project	ts should be encoura	iged.			
		Practical /	Activity- stuc	lent teachers	will review w	ork samples	of other student tea	achers to			
		explain pr	ogress or ba	rriers to learı	ning						
		Group wo	ork: put stude	ent teachers	in small group	os to examine	e various issues both	in a face to			
		face class	and also onl	ine. Create a	social media	group for eac	ch group (e.g. Faceb	ook, WhatsApp,			
		l elegram)	to enable the	iem interact	outside class i	using their m	obile or any other s	uitable device			
		enable stu	ident nerson	ally engage v	with relevant (content Tut	ors to direct student	teachers to			
		Open Edu	cational Reso	ources (e.g. Y	ouTube. MOC	CS-Udemy/	coursera. khan acad	emy. TESSA) to			
		support in	dependent s	study.				,,			
Overarchi	ng	Student te	eachers will :	-							
outcome,	what you										
want the	students to	Assess the	e risks and id	dentify vulne	rabilities of in	nformation a	assets and Recomm	end appropriate			
achieve,	serves as	protection	n for informa	tion assets (NTS 2b, 2c, 3b), 3c, 3d, 3e,	3h, 3i, 3k, 3n, 3p Ni	ECF: Pillars 1, 2			
		& <i>3,</i> cross	cutting issue	s; core skills	, Assessment,	Projessiona	n values and attitud	esj			
expanded	version of										
the descri	ption.										
• Write in	full aspects										
of the NTS	addressed		_								
Learning (Jutcome	Learning	Outcomes		Learn	ning	Identify which	cross cutting			
for the les	son, picked				Indica	ators	skills inclusivity				
the course							addressing diver	sity. How will			
specificati	on						these be a	ddressed or			
• Learning i	ndicators						developed?				
for each le	earning	CLO2:Asse	ess/evaluate	the securit	y Assess the	e risks and	These strategies	will respond to			
outcome		status of i	information :	systems. (NT	S identify		inclusivity and eq	uity (ie ICT as a			
		2b, 2c, 3b	, 3c, 3d, 3e, . 	3n, 3i, 3k, 3r	i , vulnerabil	lities of	tool for expandi	ng learning to			
		sp NIEC	na issues	I, Z & S Core skille		on assets	visual impairm	ent dyslevia			
		Assessme	nt. Profess	ional value	s appropria	te	dysgraphia).	identify the			
		and attitu	ides)		protection	n for	instances whe	en personal,			
			-		informatio	on assets	cultural, and	institutionalized			
							discrimination ar	e creating and/			
							or sustaining dis	advantages for			
							some student-tea	cners			

Topic Title:	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected Teacher-led collaborative group work or		
		_	independent.		
			Teacher Activity	Student Activity	
	Recap of previous week	20 Mins	Face-to-Face: Discussion of wikis developed from the previous lesson. Tutor leads brainstorming session to identify the information security principlesdiscussed in the previous week.	Face-to-Face: Student teachers present the wikis developed from the previous lesson. They take part in the brain storming session to identify information security principles discussed in the previous week	
	Security Concepts 1. Vulnerabilities 2. Threats 3. Threat Actors 4. Exploits 5. Risk	40 Mins	e-learning & Face-to- face Tutor shows a video on Vulnerabilities. Student teachers then discuss in their groups Vulnerabilities in ICT and under which circumstances recommendations can be made.	e-learning & Face-to-face Student teacher watches a video on Vulnerabilities. Student teachers then discuss in their groups Vulnerabilitiesin ICT drawing from their experiences in the school. They also discuss under which circumstances recommendations can be made.	
		40 Mins	e-learning & Face-to- face Tutor shows a video on what Threats means in ICT.Student teachers then discuss in their groups Threats and under which circumstances recommendations can be made.	e-learning & Face-to-face Student teacher watches a video on Threats means in ICT.Student teachers then discuss in their groups Threatsand under which circumstances recommendations can be made.	
		60 Mins	e-learning & Face-to- face Tutor shows a video on what Threat Actors, Exploits, and Risk are. Student teachers then discuss in their groups Threat Actors, Exploits, and Risk and under which circumstances they will affect information security.	e-learning & Face-to-face Student teacher watches a video on what Threat Actors, Exploits, and Risk are. Student teachers then discuss in their groups Threat Actors, Exploits, and Risk and under which circumstances they will affect information security.	
	Lesson Closure	20 Mins	Questioning: Tutor uses questioning to summarise and recap the concepts covered for the day and tasks students to write reflective notes on security concepts.	Questioning: Student teacher responds to questions to summarise and recap the concepts covered for the day write reflective notes on security concepts.	

Lesson assessments –	
evaluation of learning: of,	
for and as learning within	
the lesson	
Instructional Resources	i. Smartphones
	ii. Laptops
	iii. Desktop computers
	iv. Tablets
	v. TV and Radio
	vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy,
	TESSA)
	vii. The iBox (CENDLOS)
	viii. Productivity tools
	ix. Subject based application software
	x. Instructional Laboratories (with multimedia equipment and smartboards)
	xii. Google Classroom
Required Text (core)	Whitman, Michael E., and Herbert J. Mattord. <i>Principles of information security</i> (4 th ed.).
	Cengage Learning, 2011.
	Parliament of Ghana (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana Data
	Protection Commission website: <u>https://www.dataprotection.org.gh/data-protection-</u>
	<u>act</u>
	Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from website:
	https://www.moc.gov.gh/, https://nca.org.gh/
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from
	http://laws.ghanalegal.com/acts/id/18/contracts-act
Additional Reading List	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems.
	John Wiley & Sons, 2010.
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy
	etc)
CPD needs	Need for seminar on security concepts, vulnerabilities etc
	Writing reflective notes
	Participating in a community of practice/conferences and accessing online magazines (E-zines)
	& journals to obtain up to date content on security concepts , vulnerabilities etc
	Team teaching and lesson observation to improve instructional strategies & practices.
	Supporting student teachers in collaborating in designing and developing a wiki.

Title of Lesson Access Control Fundamentals (introduction to Accountability process) 1 Lesson Mathematics Mathematics Mathematics Mathematics Lesson description In this lesson, student teachers will examine Access Control Fundamentals (<i>National Teachers' Standard: 1a, 1b, 3b, 3c, 2a, 3d, NNTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes].</i> Previous student teachers Student - teachers have been introduced to Security fundamental II (Threat Actors, Exploits, and Risk) Possible barriers to Some student teachers might not have had knowledge and understanding of Access control fundamentals in(CT and its impact on teaching and learning. Practical Mork Seminars Independent e-learning of Access control fundamentals in(CT and its impact on teaching and learning. Lesson Delivery - chosen Face Practical Mork Seminars Independent e-learning opportunities in Mathematics and the relify opportunities [V] Practical Mork Shaping deucation. Lesson Delivery - main endogrophy roticities in small group activities involving surfing the internet of current teachers in achieving their phones and other related material would be gleaned from the internet using their phones and other related material would be gleaned from the internet using their phones and other related material would be gleaned from the interest outsigned leavies. Group work: put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social deuvices. Group work: put student teachers in small groups to examine variou	Ye	ear of B.Ed.	4	Seme	ster	2 F	Place of lesson	in semester	12 3 4	456789	10 11 12			
Lesson description In the lesson, student teachers will examine Access Control Fundamentals. (Motional Teachers' Standard: 1a, 1b, 3b, 3c, 2a, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes). Previous student teacher Standard: 1a, 1b, 3b, 3c, 2a, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes). Student -teachers have been introduced to Security fundamental II (Threat Actors, Exploits, and Risk) Dessible barriers to learning in the lesson clearning in the lesson achieving the outcomes Some student teachers might not have had knowledge and understanding of Access control fundamentals inCT and its impact on teaching and learning. Lesson Delivery - chosen to support student teachers in achieving the learning outcomes. Face-to-Face: lecturette, discussions and other talk for learning approaches should be employed Practical Trends shaping education. Face-to-face: lecturette, discussions and other related material would be gleaned from the iteratus ing their phones and other digital devices. Group work: put student teachers in small groups to examine various issues both in a face to face class and also online. Create as ocial media group for each proup (e.g., Facebook, WhatcApp, Telegram) to enable them interact outside class using their mobile or any other subable device • Overarching outcome, what you want the student teachers will: wat you want the sudent studer. Student teachers will: what Apple student teachers will: what you want the substrate knowledge and apply different security control systems to protect information systems. • Overarching outcomes for the	Title	e of Lesson		Access	Control Fur	idamenta	ls (introductio	n to Accountability	/	Lesson Duration	3 Hours			
Previous student teacher Student -teachers have been introduced to Security fundamental II (Threat Actors, Exploits, knowledge, and Risk) Possible barriers to learning in teleson Some student teachers might not have had knowledge and understanding of Access control fundamentals inCT and its impact on teaching and learning. Practical Lesson Delivery - chosen Face Practical Work [V] Based Independent elearning in the leson Lesson Delivery - main mode of delivery chosen Face [VI Based [V] Study [] opportunities [V] Practical Lesson Delivery - main mode of delivery chosen Face [VI Based [V] Study [] opportunities [V] [] Learning outdent teacho-Face: lecturette, discussions and other talk for learning opportunities: information and other related material would be gleaned from the internet using their phones and other digital devices. Group work: put student teachers in small group to examine various issues both in a face to face class and also online. Create as acial media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other study to enable student personally engage with relevant content. Tutors to direct student eachers to open Educational Resources (e.g. YouTube, MOOCS-Udemy/Coursera, khan academy, TESA) to support independent study. • Overarching outcomes, for the lesson, picked and enoweloged from the course specification Le	Lesson description In this lesson, student teachers will examine Access Control Fundamentals.(National Teach Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Profession values and attitudes).									al Teachers' Professional				
knowledge, prior learning (assumed) and Risk) Possible barriers to learning in the lesson Some student teachers might not have had knowledge and understanding of Access control fundamentals inICT and its impact on teaching and learning. e-learning opportunities [v] Practicum (astieving the outcomes Actieving the outcomes achieving the outcomes. Face vork [v] Based vork [v] Evinance (v) Evinance (v) Practicum (v) P	Prev	vious student	teacher	Student	t –teachers	have bee	n introduced t	o Security fundam	ental II (T	hreat Actors	, Exploits,			
(assumed) Some student teachers might not have had knowledge and understanding of Access control learning in the lesson Dessible barriers to learning in the lesson Some student teachers might not have had knowledge and understanding of Access control fundamentals inICT and its impact on teaching and learning. e-learning optications opportunities [v] Practical [v] Work Study [] e-learning opportunities [v] Practical [v] Practical [v] Vi [] Practical [v] Practical	kno	wledge, prior	learning	and Ris	k)									
Possible barriers to learning in the lesson Some student teachers might not have had knowledge and understanding of Access control fundamentals inICT and its impact on teaching and learning. Lesson Delivery - chosen to support students in achieving the outcomes Face vi Work Seminars Independent e-learning opportunities vi Practical work vi Lesson Delivery - main mode of delivery chosen to support student teachers in achieving the learning outcomes. Face - to-Face: lecturette, discussions and other talk for learning approaches should be employed Practical Activity: Individual and group activities involving surfing the internet for current teachers in achieving the learning outcomes. Face-to-Face: lecturette, discussions and other related material work; put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device. • Overarching outcomes, serves as basis for the substort to expend transformet. what you want the subdent student personally engage with relevant content. Tutors to direct student teachers in the Mrs addressed or the Mrs addressed or the description. Student teachers will: what you want the substort the Nrs addressed or the description. • Overarching outcomes for the lesson, picked and developed from the course specification Learning Outcomes for the lesson, picked and developed from the course specification Learning Outcomes for the lesson, picked and developed from the course specification Learning Indicators protect information s	(ass	umed)												
learning in the lesson fundamentals inICT and its impact on teaching and learning. e-learning outcomes Lesson Delivery - chosen Face: Practical Work Seminars Independent e-learning opportunities [V] Practicum Lesson Delivery - main mode of delivery chosen Face: Implementals init/CT and Virk Seminars Study [] opportunities [V] Practical Lesson Delivery - main mode of delivery chosen Face - to -Face: lecturette, discussions and other talk for learning approaches should be geneed from the internet using their phones and other digital devices. Fractical Activity: Individual and group activities involving surfing the internet for current technological trends shaping education. Learning opurtunities: Face internation and other related material would be gleaned from the internet using their phones and other digital devices. Group work: you student eachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device Independent study: Tudent teachers will: what you want the subject to open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) to support independent study. With in full aspects of the elsson, picked and devices of the elsson, picked and deviceped from the course specification <	Pos	sible barriers	to	Some s	tudent tea	chers mig	ght not have h	ad knowledge an	d underst	anding of Ad	ccess control			
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and attitudes)				skille	L, L & J, L Accoccmon	t Drofo	sional value			learning	to diverse			
with visual				and att	itudec)	<i>, </i>				learners	eg Pennle			
										with visi	ual			

	impairment,
	dyslexia,
	dysgraphia) .
	Identify the
	instances when
	personal, cultural,
	and institutionalized
	discrimination are
	creating and/ or
	sustaining
	disadvantages for
	some student-
	teachers

	Sub-topic	Time and stage	Teaching and learning activities	s to achieve outcomes			
			depending on the delivery mode selected. Teacher-led				
			collaborative group work or independent.				
Topic Title:			Teaching Activities:	Student Activity			
	Recap of previous	20 mins	Face-to-Face: Discussion of	Face-to-Face: Student			
	week		wikis developed from the	teachers present the wikis			
			previous lesson. Tutor leads	developed from the			
			brain storming session to	previous lesson. They take			
			identify security concepts in	part in the brain storming			
			ICT discussed in the previous	session to identify			
			week.	securityconcepts discussed			
				in the previous week.			
	Subject and Object	20 mins	E learning and Face to face:	E learning and Face to			
	Definition		Tutor shows short videos on	face: Student teacher			
			Subject and Object Definition.	watches videos and images			
			Definition	etc, analyses them and			
			Demition	refineSubject and Object			
				Definition			
	1 Accountability	45 mins	Face-to-face & Elearning:	Eace-to-Eace & e-learning			
	process	45 111115	Tutor shows student teachers	Students watch and			
	p.00000		short videos on	analyse videos then surf			
	2. Identification		Accountability process and	the internet with their			
			Identificationusing Creative	mobile phones for			
			Approaches (such as, games,	Meaning and examples			
			storytelling, role paly, songs	ofAccountability process			
			and modelling).	and Identification.			
			Seminar: Tutor lead students	Seminar: Student teachers			
			to discuss Accountability	discuss Accountability			
			process and Identification in	process and Identification			
			small groups and gives them	in small groups and			
			case studies and tasks them to	consider case studies given			
			perform a feasibility of a	to them by tutor and			
			scenario	perform a feasibility of the			
				scenario reporting their			
				aroun presentations			
		45 mins	E-learning: Tutor shows a	Broup presentations			
		45 111115	video tutorial on	teacher watches video on			
	1 Authentication		Authentication and	Authentication and			
	2. Authorization		Authorization.	Authorization			
				Seminar: Student teacher			
			Seminar: tutor then leads the	engages in a discussion on			
			groups to identify and discuss	Authentication and			
			Authentication and	Authorization			
			Authorization.				

		30 min	Tutor guides student teachers Student teachers watches				
	Auditing		to explore the concept	the video tutorial and			
	Additing		Auditing in Access control	explores the concept			
			Teacher shares a video	Auditing in Access control			
			tutorial on Auditing in Access				
			control with students either	Student teachers engages			
			to the whole class or to them	in discussion to identify			
			via their mobile devices.	Auditing in Access control			
			The Tutor leads the class to	and further use examples			
			identify examples of Auditing	in group presentations			
			in Access control.	They then make reflective			
				notes on Auditing in			
				Access control.			
	Lesson Closure	20 Mins	Questioning: Tutor uses	Questioning: Student			
			questioning to summarise and	teacher responds to			
			recap the concepts covered	questions to summarise			
			for the lesson.	and recap the concepts			
				covered for the lesson.			
Lesson							
assessments –							
evaluation of							
learning: of, for							
within the losson							
Instructional	i Smartnhones						
Resources	ii Lantons						
Resources	iii Deskton computers						
	iv. Tablets						
	v. TV and Radio						
	vi. Open Educational Re	esources (Including	: YouTube, MOOCS-Udemy/cours	era, khan academy,			
	TESSA)						
	vii. The iBox (CENDLOS)					
	viii. Productivity tools						
	ix. Subject based applic	cation software					
	x. Instructional Laborat	tories (with multim	edia equipment and smartboards)			
	xi. Google Classroom			· · · th · · · ·			
Required Text	Whitman, Michael E., a	and Herbert J. Matt	cord. Principles of information sect	urity (4 th ed.). Cengage			
(core)	Learning, 201	1. 1012) Data Bratast	ion Act 2012 (Act 842) Detrious	rom Chana Data Protoction			
		upsito: https://www	iul Act, 2012 (Act 843), Retileve i	otaction act			
	Parliament of Ghana (2	2008) Electronic co	mmunications act 2008 (775) Ret	trieve from website:			
	https://www.	moc.gov.gh/ . http:	s://nca.org.gh/				
	Parliament of Ghana. L	aw of Contract (act	t 25, 1960), Retrieve from				
	http://laws.ghanalegal	.com/acts/id/18/co	ontracts-act				
Additional	Anderson, Ross J. Secu	rity engineering: a	guide to building dependable distr	ributed systems. John Wiley			
Reading List	& Sons, 2010.						
-	Selected articles and o	nline resources (yo	utube.com, MOOCs: Khan Acader	ny, TESSA, Udemy etc)			
CPD needs	Need for seminar on A	ccess control funda	amentals				
	Writing reflective note	S					
	Participating in a comn	nunity of practice/o	conterences and accessing online	magazines (E-zines) &			
	journals to obtain up to	o date content on A	Access control fundamentals)			
	Team teaching and less	son observation to	improve instructional strategies &	k practices.			
	Supporting student tea	ichers in collaborat	ing in designing and developing a	WIKI.			

Y	Year of B.Ed. 4 Semester 2 Place of lesson in semester				1 2 3 4 5 6 7 8 9 10 11 12						
Title	e of Lesson	Access Control Fundamentals (Authentication types) II Lesson Duration 3 Hours									
Less	son description	In this lesson fundamentals. <i>crosscutting is</i> :	fundamentals. (National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues: Core skills. Professional values and attitudes).								
Prev	vious student	Student teach	ers have	e been int	roduced to	Access Contro	l Fundamentals (ir	troduction to			
tead	cher knowledge,	Accountability	process								
prio	or learning										
Pos	sible barriers to	Some student t	teachers	might not h	ave had know	vledge and und	erstanding of Authe	ntication types			
lear	ning in the lesson	under Access c	ontrol fur	ndamentals	and its impa	ct on teaching a	nd learning.	filleation types			
Less	son Delivery –	Face-to-face	Practi	Work-	Seminars	Independent	e-learning	Practicum			
cho	sen to support	[v]	cal	Based	[]	Study []	opportunities				
stuc	dents in achieving		Activi	Leaning			[1]				
the	outcomes		ty								
			[V]								
Less	son Delivery – main	Face-to-face -	Both tea	acher and	student-led a	approaches suc	n as discussions of	varying kinds			
cho	sen to support	F-learning opp	ortunitie	s - Student t	eachers woul	d watch videos	on YouTube/videos	about			
stuc	dent teachers in	compatibility is	sues bet	ween types	of technology	4					
achi	ieving the learning	Seminars – Bot	h individ	ual and gro	up presentati	, on of projects s	hould be encourage	d.			
out	comes.	Practical Activi	ty - stude	nt teachers	will review w	ork samples of	other student teach	ers to explain			
		progress or bar	riers to le	earning							
		Group work: p	ut studen	t teachers	in small group	s to examine va	rious issues both in	a face to face			
		class and also c	online. Cro	eate a socia	al media group	o for each group	o (e.g. Facebook, Wh	iatsApp,			
		Telegram) to el	hable the	m interact	outside class	using their mob will include an e	le or any other suita	able device			
		enable student	personal	lv engage v	with relevant (content Tutors	to direct student te	achers to			
		Open Educatio	nal Resou	irces (e.g. Y	ouTube, MOC	CS-Udemy/cou	irsera, khan academ	y, TESSA) to			
		support indepe	endent stu	udy.							
•	Overarching	Student teache	ers will:								
	outcome, what you						<i></i>				
	want the students	Implement sec	urity cont	rols to red	uce the risks t	o information a	ssets. (NTS 2b, 2c, 3	b, 3c, 3d, 3e,			
	to achieve, serves	30, 31, 3K, 30, 3	sp NIECF: itudes)	Pillars 1, 2	. & 3, crosscu	ting issues; Col	e skills, Assessment	, Projessionai			
	learning outcomes.	values and att	luucsj								
	An expanded										
	version of the										
	description.										
•	Write in full										
	aspects of the NTS										
•	Learning Outcome	Learning Outco	omes	L	earning Indic	ators	Identify which cross	s cutting issues			
	for the lesson,	0			Ū		 core and trans 	sferable skills,			
	picked and						inclusivity, equity a	and addressing			
	developed from						diversity.				
	the course	CLO3 : D	emonstra	ate Imple	ment security	controls to	These strategies wi	l respond to			
-	specification	knowledge a	and ap	ply reduc	e the risks to	information	inclusivity and equi	ty (ie ICT as a			
•	Learning indicators	different secu	rity cont	rol assets	5.		tool for expanding l	earning to			
		information of	prote				visual impairment	reopie with			
	Jucome	2h. 2c. 3h 3c	3d. 20	3h.			dysgraphia) Identif	v the			
		3i, 3k, 3n.	3p NTE	CF:			instances when per	, sinc sonal, cultural.			
		Pillars 1,	2 &	3,			and institutionalize	d			

	crosscutting issue skills, Asse Professional valu attitudes)	es; Core essment, ues and		discrimination are creating and/ or sustaining disadvantages for some student-teachers
Topic Title:	Sub-tonic	Stage/time	Teaching and learning activ depending on the delivery r collaborative group work of	ities to achieve outcomes node selected. Teacher-led
		otage, time	Teacher Activity	Student Activity
	Recap of previous lessons	15 mins	Face to face: Tutor guides student teacher to discuss their reflections on the concept authentication and authorization with examples.	Face to face: Student teacher presents and discusses their own and others reflections on authentication and authorization with examples.
	Authentication by Knowledge	30 min	e-learning opportunities: Tutor shows a video on Authentication by Knowledge. Group Work: Tutor breaks class into small diverse groups to analyse the video identifying Authentication by Knowledge	e-learning opportunities: Student teachers watch video on Authentication by Knowledge Group Work: Student teachers participates in group discussions to analyse the video identifying Authentication by Knowledge
	Authentication by Ownership	60 mins	E learning, Questioning and practical: Tutor shows a video on Authentication by Ownership and then uses questioning to bring to the fore Authentication by Ownership entails.	Questioning: Student teachers watch video and answer questions to bring out whatAuthentication by Ownership entails. Student teachers put together points to guide them in the search for Advantages of authentication by ownership.
	Authentication by Characteristic		Group discussion & Seminar: Tutor breaks class into their small diverse groups to discuss Authentication by Characteristic. Tutor guides student teachers to apply the concepts of Authentication by Characteristic to their projects	Group discussion & Seminar: Student teachers discuss in their groups Authentication by Characteristic. Groups make presentations on their findings. Student teachers then apply the concepts Authentication by Characteristic to their projects.
	Closure	15 mins	Closure: Tutor guide the student teacher to recap the discussions for the day (PDG Theme 3). Tutor gives an assignment for student teachers on authentication by ownership and Authentication by Characteristic and write notes in their reflective journals	Closure: student teacher contributes in discussions to recap the sub-topics learnt for the day. (PDG Theme 3). Student teacher work on authentication by ownership and Authentication by Characteristic as an assignment and write notes in their reflective journals

Lesson assessments –	Student teachers work on authentication by ownership and Authentication by Characteristic as an
evaluation of learning:	assignment and write notes in their reflective journals.
of, for and as learning	
within the lesson	
Instructional Resources	i. Smartphones
	ii. Laptops
	iii. Desktop computers
	iv. Tablets
	v. TV and Radio
	vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy,
	TESSA)
	vii. The iBox (CENDLOS)
	viii. Productivity tools
	ix. Subject based application software
	x. Instructional Laboratories (with multimedia equipment and smartboards)
	xi. Google Classroom
Required Text (core)	Whitman, Michael E., and Herbert J. Mattord. <i>Principles of information security</i> (4 th ed.). Cengage
	Learning, 2011.
	Parliament of Ghana (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana Data
	Protection Commission website: <u>https://www.dataprotection.org.gh/data-protection-act</u>
	Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from website:
	https://www.moc.gov.gh/, https://nca.org.gh/
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from
	http://laws.ghanalegal.com/acts/id/18/contracts-act
Additional Reading List	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems. John
	Wiley & Sons, 2010.
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy etc)
CPD needs	Need for seminar on authentication by ownership and characteristic
	Writing reflective notes
	Participating in a community of practice/conferences and accessing online magazines (E-zines) &
	journals to obtain up to date content.
	Team teaching and lesson observation to improve instructional strategies & practices.
	Supporting student teachers in collaborating in designing and developing a wiki.

Year of B.Ed	. 4	Semest	er 2	Place	of lesson	ı in se	mester	1 2 3 4 5 6 7 8 9	0 10 11 12			
Title of Lessor	ı	Access	Access Control Fundamentals Lesson Duration 3 Hours									
Lesson descrip	ntion	In this		ident teac	hers will	he i	ntroduced to	 mechanisms for a	uthentication			
Lesson desering	Stion	(Multifa	actor Auther	tication).(National	Teach	ers' Standard:	1a. 1b. 3b. 3c. 3e. 3	d. 3n/NTECF:			
		Pillar ci	rosscutting i	ssues; Core	e skills, Pr	ofess	ional values an	d attitudes).	.,,			
Previous stu	ident teache	er Studen	t Teachers h	ave been ir	ntroduced	to A	ccess Control Fi	undamentals (Authe	entication			
knowledge,	prior learnin	g types) I	I									
(assumed)												
Possible barri	ers to learning	Some s	tudent teach	ners might	not have	had k	knowledge and	understanding of A	ccess control			
In the lesson	nu - choson to	Face	Practical	Work	Somin	arc	Indonondont	o loarning	Practicum			
support stude	ny – chosen to onts in	to-		Based	[v]	dis	Study [v]	onnortunities	Practicum			
achieving the	outcomes	face [$\lceil v \rceil$	Leaning	[•]		Study[V]					
		v]		8								
Lesson Deliv	very – mai	n			1				•			
mode of deliv	very chosen t	o Face-to	- face – Both	i teacher ai	nd studen	nt-led	approaches suc	ch as discussions of	varying kinds			
support stude	ent teachers i	n should	be used.									
achieving	the learnin	g E-learn	ing opportu	nities -Stuc	lent teach	ners w	ould watch vid	eos on YouTube/vio	leos about			
outcomes.		respons	SIDIE USE OF t	ecnnology	systems.	rocon	tation of projoc	ts should be oncou	ragod			
		Practice	al Activity, s	tudent tea	chars will	rovio	w work sample	s of other student t	eachers to			
		explain	Practical Activity - student teachers will review work samples of other student teachers to explain progress or barriers to learning									
		Group	Group work: put student teachers in small groups to examine various issues both in a face									
		to face	to face class and also online. Create a social media group for each group (e.g. Facebook,									
		WhatsA	WhatsApp, Telegram) to enable them interact outside class using their mobile or any other									
		suitable	suitable device									
		Indepe	Independent study: any of the above methods will include an element of independent									
		study to	o enable stu	dent perso	nally enga	age w	ith relevant cor	itent. Tutors to dire	ct student			
		teacher	s to Open E	ducational	Resource	s (e.g.	. You lube, MO	JCS-Udemy/course	ra, knan			
Overarchi	ing outcom		t teachers w	ill.	luepellue	ni siu	uy.					
what vo	ou want th	e Implem	ent security	controls to	o reduce t	he ris	sks to informati	on assets (NTS 2b.	2c. 3b. 3c. 3d.			
students	to achiev	e, <i>3e, 3h,</i>	3i, 3k, 3n, 1	3p NTECF:	Pillars 1,	2 &	3, crosscutting	issues; Core skills,	Assessment,			
serves as	basis for th	e Profess	ional values	and attitu	des)							
learning	outcomes. A	n										
expanded	l version of th	e										
descriptio	on.											
Write in the NTS a	tull aspects of	DT										
• Learning	Outcome for	Learnin	g Outcomes		lear	ning l	ndicators	Identify which	cross cutting			
the lessor	n. picked and	Leannin	5 outcomes		Lear		indicators	issues –	core and			
develope	d from the							transferable ski	ls, inclusivity,			
course sp	ecification							equity and	addressing			
• Learning	indicators for							diversity. How	will these be			
each lear	ning outcome							addressed or de	veloped?			
		CLO3:	Dem	onstrate	Impleme	nt sec	curity controls	These strategies	s will respond			
		knowle	dge and	apply	to reduce	e the i	risks to	to inclusivity a	nd equity (ie			
		aitterer	it security	control	informat	ion as	sets.	ICI as a tool f	or expanding			
		informa	s lu ation syste	ms /NTC					with visual			
		2b. 2c.	3b. 3c. 3d	3e, 3h.				impairment.	dyslexia			
		3i, 3k, 3	3n, 3p NTEC	F: Pillars				dysgraphia).	dentify the			
		1, 2	& 3, cros	scutting				instances whe	n personal,			
		issues;	Core	skills,				cultural, and ins	titutionalized			

	Assessment, P	Professional		discrimination are creating				
	values and attit	udes)		and/ or sustaining				
				disadvantages for some				
Topic Title:			Teaching and learning activities	s to achieve outcomes				
		Stage/	depending on the delivery mode selected. Teacher-led					
	Sub-topic		collaborative group work or independent.					
		time	Teacher Activity	Student				
	Introduction	15 Mine	Tutor uses questioning to recen	Activity				
	and review of	T2 MILLI2	the concepts authentication by	questions to recap the				
	RPK		knowledge, authentication by	concepts authentication				
			ownership and authentication	by knowledge,				
			by characteristic.	authentication by				
				ownership and				
				characteristic.				
	mechanisms	45 Mins	E-learning & face to face:	E-learning & face to face:				
	for		Tutor shows a video to explain	Student teacher watches				
	authentication		the mechanisms for	a video which				
			Tutor engages in a discussion	authentication				
			on mechanisms for					
			authentication					
		105 Mins	F-learning & face to face:					
		103 101113	Tutor shows a video to explain	Student teacher watches				
			mechanisms for authentication.	a video which explains				
			Tutor then leads class in a	mechanisms for				
			discussion on mechanisms for	authentication.				
				in a discussion on				
				mechanisms for				
				authentication.				
	Closure	15 Mins	Tutor moderates group	Student teachers do a				
			authentication to recap the	mechanisms for				
			lesson	authentication to recap				
				the lesson				
Lesson assessments –	Student teachers	s do a group	presentation on mechanisms for	authentication to recap the				
for and as learning within	lesson							
the lesson								
Instructional Resources	i. Smartphones							
	II. Laptops	outors						
	iv. Tablets	Juleis						
	v. TV and Radio							
	vi. Open Educati	onal Resourc	es (Including: YouTube, MOOCS-L	Jdemy/coursera, khan				
	academy,							
	vii. The iBox (CEN	NDLOS)						
	viii. Productivity	tools						
	ix. Subject based	l application	software	an anth a sud ()				
	x. Instructional L	aporatories (oom	with multimedia equipment and s	smartboards)				
Required Text (core)	Whitman, Micha	el E., and He	rbert J. Mattord. Principles of info	rmation security (4 th ed.).				
	Cengag	e Learning, 2	011.	,				
	Parliament of Gh	nana (2012).	Data Protection Act, 2012 (Act 843	3), Retrieve from Ghana Data				
	Protect	ion Commiss	ion website: <u>https://www.datapro</u>	otection.org.gh/data-				
	protect							

	Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from							
	website: <u>https://www.moc.gov.gh/</u> , <u>https://nca.org.gh/</u>							
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from							
	http://laws.ghanalegal.com/acts/id/18/contracts-act							
Additional Reading List	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems.							
	John Wiley & Sons, 2010.							
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy							
	etc)							
CPD needs	Need for seminar on mechanisms for authentication							
	Writing reflective notes							
	Participating in a community of practice/conferences and accessing online magazines (E-							
	zines) & journals to obtain up to date content on mechanisms for authentication.							
	Team teaching and lesson observation to improve instructional strategies & practices.							
	Supporting student teachers in collaborating in designing and developing a wiki.							

Ye	ear of B.Ed.	4	Sen	nester	2 PI	ace of lesson	in semester	1 2 3 4 5 6 7	8 9 10 11 12		
			T					Γ			
Title	e of Lesson		Access metho	Access Control Fundamentals (Authorization and Auditing Lesson Duration 3 Hours methods) IV							
Less	son descriptio	n	In this	s lesson, Stu	ident teacl	ners will be	introduced to a	authorization metho	ods and auditing		
			methods.(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills, Professional values and attitudes).								
Pre	vious student	teacher	Studer	nt teachers l	have beer	n introduced	to Access Cor	trol Fundamentals	in the previous		
kno	wledge, prior	learning	lesson								
(ass	sumed)										
Pos	sible barriers	to	Some	student teac	hers might	not have ha	d knowledge an	d understanding of	Web and Mobile		
lear	rning in the les	son	Develo	opment in Ed	ucation an	d its impact o	n teaching and I	earning.			
Less	son Delivery –	chosen	Face	Practical	Work-	Seminars	Independen	e-learning	Practicum		
to s	upport studer	nts in	-to-	Activity	Based		t Study	opportunities	11		
ach	ieving the out	comes	face	[v]	Learning	[v]	[v]	[v]			
		•	[v]		[]						
Less	son Delivery	– main	Face 4	a face Det	h tooohou			auch an diasussians	of your include		
mo	de of delivery	chosen	Face-t	o-race – Bou	n teacher	and student-	led approaches	such as discussions	or varying kinds		
10	support	ving the	E loor	i be used.	nition Stu	dont toochors	would watch vi	doos on VouTubo <i>lu</i> i	doos about		
lead	chers in achie	ving the	E-lean	ning opportu	technology		would watch vi				
icai	ning outcome		Semin	ars – Both in	dividual an	d group prese	entation of proje	ects should be encou	raged		
			Practic	cal Activity-	student tea	chers will rev	iew work sample	es of other student i	eachers to		
			explai	n progress or	barriers to	learning					
			Group	work: put st	udent tead	hers in small	groups to exami	ne various issues bo	th in a face to		
			face cl	ass and also	online. Cre	ate a social m	edia group for e	each group (e.g. Face	book,		
			Whats	App, Telegra	m) to enab	le them inter	act outside class	using their mobile	or any other		
			suitab	le device							
			Indep	endent study	: any of th	e above meth	nods will include	an element of inde	pendent study to		
			enable	e student per	sonally eng	gage with rele	vant content. Tu	utors to direct stude	nt teachers to		
			Open	Educational F	Resources (e.g. YouTube	, MOOCS-Udem	y/coursera, Khan aca	idemy, TESSA) to		
_			suppo	rt independe	nt study.						
•	Overarching	_	Studer	nt teachers w	/ill:						
	outcome, w	hat you									
	want the stu	dents to	Impler	ment security	y controls	to reduce the	risks to inform	ation assets. (NIS 2), 2C, 3D, 3C, 3d,		
	achieve, se	rves as	3e, 3n	1, 31, 3K, 3N,	3p NIEC	·: Pillars 1, 2	& 3, crosscutt	ing issues; core sk	llis, Assessment,		
		learning An	Projes	sional value:	s ana attiti	ides)					
	expanded ve	rsion of									
	the description	on.									
•	Write in full	aspects									
	of the NTS ad	Idressed									
٠	Learning Out	come	Learni	ng Outcome	s		Learn	ing Iden	tify which cross		
	for the lessor	n, picked					Indica	tors cutti	ng issues – core		
	and develope	ed from						and	transferable		
	the course							skills	, inclusivity,		
	specification		equity and								
٠	Learning indi	cators						addr	essing diversity.		
	for each lear	ning						How	will these be		
	outcome							addr	essed or		
								deve	loped?		
			CLO3:	Demonstra	te knowle	dge and ap	ply Implemen	t security Activ	ities will instil in		
			differe	ent security of	control sys	tems to prot	ect controls to	reduce the stud	ent virtues such		
			inform	nation system	ns.(NTS 2b)	, 2c, 3b, 3c, 3	3a , risks to inf	ormation as he	nesty and		
			3e, 3h	, 31, 3k, 3n, .	SP NTECF:	Pillars 1, 2 &	<i>3</i> , assets.	critic	ai thinking as		
			Crossc	utting issues	s and attitude	us, Assessme udac)	πι,	they	accurately		
			riojes	sionai value:	s ana attitl	iuesj		evan	late and report		

Topic Title:	Sub-tonic	Stage/time	Tea	ching and learning acti comes depending on t	on fair use of tools of technology adopted to address diverse learning needs. They will learn to avoid biases in favour of or against specific gender, social class. Religion and ethnicity. ivities to achieve he delivery mode
			inde	ependent.	
			Теа	cher Activity	Student Activity
	Recap of Previous	30 Mins	Fac	e-to-face	Face-to-face
	lesson Understanding		Use	s questions to recap	Student teachers answer
	mechanism for		stuc	dent teachers	questions to recap their
	authentication		und	erstanding on	understanding on
			med	chanism for	mechanism for
			autl	hentication	authentication
	Authorization methods	50 min	Inte	eractive lecturette:	Independent study &
			Tuto	or uses an interactive	Seminar
			lect	urette to explain	Student teachers
			Aut	horization methods	participate in the
			. Us	ing videos Tutor Will	interactive lecturette
			exp	lain Authorization	and watch videos to
			Tut	nous ar leads a discussion	of Authorization
			nut		or Authorization mothods
			met	hods	Student teachers
	Auditing methods		met		engage in a discussion
	Additing methods				on Authorization
					methods
		90 min	Inte	eractive lecturette	Interactive lecturette
			wit	h video: Tutor uses	with video:
			ani	interactive lecturette	Student teachers
			to	explain Auditing	participate in the
			met	hods. Using videos	interactive lecturette
			Tuto	or will explain	and watch videos on
			Aud	liting methods. Tutor	Auditing methods
			guio	des student teachers	. Student teachers write
			to	write and make a	and make a group
			grou	up presentation	presentation on Auditing
			Aud	liting methods.	methods.
	Lesson Closure	10 mins	Tuto	or reviews	Student teacher reviews
			autl	norization and	with tutor authorization
			aud	iting methods with	and auditing methods to
			stuc	aent teachers to	recap concepts learnt.
	Student teacher		reca	ap concepts learnt.	de to recon concente
Lesson assessments –	Student teacher reviews	with tutor author	rizatio	on and additing method	us to recap concepts
for and as learning within	learnt.				
the lesson					
Instructional Resources	i Smartnhones				
moti uctional resources	ii Lantons				
	iii Deskton computers				
	iv. Tablets				
	v. TV and Radio				
	vi. Open Educational Res	ources (Including	: You	Tube, MOOCS-Udemv/	coursera, khan academv
	TESSA)			, <i></i> ,	, , , , , , , , , , , , , , , , , , , ,

	vii. The iBox (CENDLOS)
	viii. Productivity tools
	ix. Subject based application software
	x. Instructional Laboratories (with multimedia equipment and smartboards)
	xi. Google Classroom
Required Text (core)	Whitman, Michael E., and Herbert J. Mattord. <i>Principles of information security</i> (4 th ed.).
-	Cengage Learning, 2011.
	Parliament of Ghana (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana Data
	Protection Commission website: https://www.dataprotection.org.gh/data-protection-
	act
	Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from website:
	https://www.moc.gov.gh/, https://nca.org.gh/
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from
	http://laws.ghanalegal.com/acts/id/18/contracts-act
Additional Reading List	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems.
	John Wiley & Sons, 2010.
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy
	etc)
CPD needs	Need for seminar on authorization and auditing
	Writing reflective notes
	Participating in a community of practice/conferences and accessing online magazines (E-zines)
	& journals to obtain up to date content on authorization and auditing
	Team teaching and lesson observation to improve instructional strategies & practices.
	Supporting student teachers in collaborating in designing and developing a wiki.

Year of B.Ed. 4	Semester	Semester 2 Place of lesson in semester						1 2 3 4 5 6 7 8 9 10 11 12			
Title of Lesson	Types of In I	formation s	ecurity contro	ontrols)	Lesson Duration		3 Ho	urs			
Lesson description	In this less information Pillar cross	n this lesson, student teachers will be introduced to logical controls under types of nformation security controls. (<i>National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF:</i> <i>Pillar crosscutting issues; Core skills, Professional values and attitudes</i>).									
Previous student teacher	Student te	achers hav	e taken a les	sson in Acce	ess Contro	l Fund	lamentals (A	Autho	orization &		
knowledge, prior learning	Auditing m	ethods)									
(assumed)											
Possible barriers to learning	Some stud	ent teache	rs might not	have had kn	owledge a	and un	derstanding	of ir	nformation		
In the lesson	security.	D ··· I		<u> </u>					.		
Lesson Delivery – chosen to	Face-to-	Practical	Work-	Seminars	Indepen	dent	e-learning	•	Practicu		
support students in	face		Based	[v]	Study [v	J		ties	m		
achieving the outcomes		[V]	Leaning				[V]				
mode of delivery chosen to support student teachers in achieving the learning outcomes.	 Face-to-face should be used E-learning responsible Seminars - Practical A explain procession Group word face class a WhatsApp, suitable dee Independee to enable se 	 Face-to-face – Both teacher and student-led approaches such as discussions of varying kinds should be used. E-learning opportunities -Student teachers would watch videos on YouTube/videos about responsible use of technology systems. Seminars – Both individual and group presentation of projects should be encouraged. Practical Activity- student teachers will review work samples of other student teachers to explain progress or barriers to learning Group work: put student teachers in small groups to examine various issues both in a face to face class and also online. Create a social media group for each group (e.g. Facebook, WhatsApp, Telegram) to enable them interact outside class using their mobile or any other suitable device Independent study: any of the above methods will include an element of independent study 									
Overarching outcome	to Open Ed TESSA) to s	lucational R Support inde	esources (e.g ependent stuc	. YouTube, M ly.	OOCS-Ude	my/co	ursera, khan	acac	lemy,		
 what you want the students to achieve serves as basis for the learning outcomes. Ar expanded version of the description. Write in full aspects of the NTS addressed 	e Student Te Implement Je Implement Je, Jh, Ji, F Profession	Student Teachers will: Implement security controls to reduce the risks to information assets.(<i>NTS 2b, 2c, 3b, 3c, 3d, 3e, 3h, 3i, 3k, 3n, 3p NTECF: Pillars 1, 2 & 3, crosscutting issues; Core skills, Assessment, Professional values and attitudes</i>)									
 Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for each learning outcome 	Learning O	utcomes		Learnii	ng Indicato	ors i i i i i i	dentify whit ssues – transferable nclusivity, addressing will these b developed?	ch cro cc equ diver e ad	oss cutting ore and skills, Jity and sity. How dressed or		
	apply diff systems t systems. (1 3e, 3h, 3i, 3 1, 2 & 3, c skills, Ass values and	erent secu o protect NTS 2b, 2c, 3k, 3n, 3p N rosscutting sessment, attitudes)	inity control information , 3b, 3c, 3d, ITECF: Pillars issues; Core Professional	controls to risks to info assets.	reduce the	e (() 1 1 1	coverop skill of ICT, col communicat on equity, ge nclusion reflection chinking	is in labor ion, ender as and	ation and knowledge and well as critical		

•	CLO4. Build a profession	onal record	4.1 Build a portfolio				
	to reflect student	teacher's					
	accomplishments,	skills,					
	experiences, learni	ng and					
	attributes NTS: 1a,	1d, 2c,					
	2e/NTECF: Pillar 1& 3						
Topic Title:			Teaching and learning activ	vities to achieve outcomes			
-			depending on the delivery	mode selected. Teacher-led			
	Sub-topic	Stage/ti	collaborative group work o	r independent.			
		me	Teacher Activity	Student Activity			
	Recap of previous	30 mins	Face-to-Face: Discussion on	Face-to-Face: Student			
	lesson		authorization and auditing.	teacher discusses			
			Tutor leads brain storming	authorization and			
			session on authorization	auditing to recap			
			and auditing to recap	previous lesson with			
			previous lesson.	tutor.			
	Logical controls		Interactive lecturette with	Interactive lecturette			
	Traditional	140 min	video:	with video:			
	Firewalls		Tutor uses an interactive	e Student teachers			
	 Packet- 		lecturette to explain Logica	I participate in the			
	Filtering		controls. Tutor leads	interactive lecturette			
	Techniques		discussion on Logica	I and watch videos to			
	Application		controls.	build an understanding			
	Proxies			of Logical controls.			
	 Network 		Tutor then discusses the	e Student teachers then			
	Address		following examples o	f discuss the following			
	Translation		logical controls with studen	t examples of logical			
	Port Address		teachers ;	controls with tutor;			
	Translation						
			Traditional	Traditional			
			Firewalls	Firewalls			
			 Packet-Filtering 	Packet-Filtering			
			Techniques	Techniques			
			Application Proxies	Application			
			 Network Address 	s Proxies			
			Translation	Network			
			 Port Address 	s Address			
			Translation	Translation			
				Port Address			
				Translation			
	Closure	10 mins	Tutor reviews Logical	Student teacher reviews			
			controls with student	with tutor Logical			
			teachers to recap concepts	controlsto recap			
			learnt.	concepts learnt.			
Lesson assessments –	Student teachers write	short notes	with examples of the followir	ng under logical controls;			
evaluation of learning: of,							
for and as learning within	Traditional Fire	ewalls					
the lesson	Packet-Filtering	g Techniques	5				
	Application Pro	oxies					
	Network Addre	ess Translatio	งท				
	Port Address T	ranslation					
Instructional Resources	i. Smartphones						
	ii. Laptops						
	iii. Desktop computers						
	iv. Tablets						
	v. TV and Radio						
	vi. Open Educational Re	sources (Incl	uding: YouTube, MOOCS-Ude	my/coursera, khan			
	academy,						
	TESSA)						

	vii. The iBox (CENDLOS)
	viii. Productivity tools
	ix. Subject based application software
	x. Instructional Laboratories (with multimedia equipment and smartboards)
	xi. Google Classroom
Required Text (core)	Whitman, Michael E., and Herbert J. Mattord. <i>Principles of information security</i> (4 th ed.).
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	Protection Commission website: https://www.dataprotection.org.gh/data-
	protection-act
	Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from
	website: <u>https://www.moc.gov.gh/</u> , <u>https://nca.org.gh/</u>
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from
	http://laws.ghanalegal.com/acts/id/18/contracts-act
Additional Reading List	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems.
	John Wiley & Sons, 2010.
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy
	etc)
CPD needs	Need for seminar on logical controls (Traditional firewalls, Packet-Filtering Techniques
	Writing reflective notes
	Participating in a community of practice/conferences and accessing online magazines (E-
	zines) & journals to obtain up to date content on logical controls, and packet-filtering
	techniques
	Team teaching and lesson observation to improve instructional strategies & practices.
	Supporting student teachers in collaborating in designing and developing a wiki.

Year of B.Ed. 4	Sei	nester	2 Place	of lesson in ser	nester	1 2 3 4 5 6 7 8 9 10 11 1					
_	-										
Title of Lesson	Informat	nformation security controls (Physical & Administrative Lesson Duration 3 Hours									
Losson description	Lo this lo	ontrois) II									
Lesson description	Teachers	This lesson, student teachers will be introduced to physical and administrative controls. (National									
	Professio	Professional values and attitudes).									
Previous student	Students	Teachers have	e been introdu	iced to Types of	^f Information	security controls (Logical				
teacher knowledge,	Controls)	1		···· · / [-·· ·			0				
prior learning	,										
(assumed)											
Possible barriers to	Some stu	Some student teachers might not have had knowledge and understanding of information security.									
learning in the lesson											
Lesson Delivery –	Face-	Practical	Work-	Seminars	Independer	nt e-learning	Practicum				
chosen to support	to-face	Activity	Based	[v]	Study [opportunities	5				
students in achieving	[V]	[v]	Leaning			[V]					
the outcomes											
Lesson Delivery –	Face-to-f	ace – Both tea	icher and stud	dent-led approa	ches such as	discussions of var	ying kinds should				
main mode of delivery	be used.		<u>.</u>			V T I () I					
chosen to support	E-learnin	g opportunitie	es -Student te	achers would w	atch videos o	n YouTube/videos	about				
achieving the learning	responsi	Sie use of tech	nology system	15.							
outcomes.	Practical	Activity- stude	ent teachers w	vill review work	samples of o	ther student teach	ners to explain				
outcomeon	progress	or barriers to	earning		sumples of o						
	Group w	ork: put stude	nt teachers in	small groups to	examine var	ious issues both in) a face to face				
	class and	also online. Ci	reate a social	media group foi	r each group	(e.g. Facebook, Wl	hatsApp,				
	Telegram) to enable the	em interact ou	utside class usin	g their mobile	e or any other suit	able device				
	Independ	dent study: an	ly of the abov	e methods will i	include an ele	ment of independ	lent study to				
	enable st	udent persona	ally engage wi	th relevant cont	ent. Tutors to	o direct student te	achers to Open				
	Educatio	nal Resources	(e.g. YouTube	, MOOCS-Udem	iy/coursera, k	han academy, TES	SA) to support				
	independ	lent study.									

•	Overarching	Student Teachers will:		
	outcome, what			
	you want the	Implement security controls to reduce the risks to	o information assets. (NTS	2b, 2c, 3b, 3c, 3d, 3e, 3h,
	students to	3i, 3k, 3n, 3p NTECF: Pillars 1, 2 & 3, crosscut	ting issues; Core skills, /	Assessment, Professional
	achieve, serves as	values and attitudes)		
	basis for the			
	learning			
	outcomes. An			
	expanded version			
	of the			
	description.			
٠	Write in full			
	aspects of the			
	NTS addressed			
•	Learning	Learning Outcomes	Learning	Identify which cross
	Outcome for the		Indicators	cutting issues – core
	lesson, picked			and transferable skills,
	and developed			inclusivity, equity and
	from the course			addressing diversity.
	specification			How will these be
•	Learning			addressed or
	indicators for			developed?
	each learning	CLO3: Demonstrate knowledge and apply	Implement security	Develop skills in
	outcome	different security control systems to protect	controls to reduce the	Integration of ICT,
		information systems. (NTS 2b, 2c, 3b, 3c, 3d, 3e,	risks to information	collaboration and

	3h, 3i, 3k, 3n, 3p crosscutting issues; Professional values o	NTECF: Pillars Core skills, A and attitudes)	1, 2 & 3, Assessment,	assets.		communication, knowledge on equity, gender and Inclusion as well as reflection and critical thinking	
Topic Title:			Teaching a	and learning activit	ties to	achieve outcomes	
	Sub-topic	Stage/time	collaborati	on the delivery mi	ode se indepe	endent.	
	·	0,	Teacher A	ctivity	•	Student Activity	
	Recap of previous	30 mins	Questionir	ng: Tutor uses	Ques	stioning: Student teacher	
	lesson		questionin	g to recap	answ	vers questions to recap	
			student tea	acher s	stude and i	inderstanding on logical	
			understand	ding on logical	conti	rols	
			controls	5 5			
	Physical controls	140 min	Face-to- fa	ce & e-learning	Face	-to-face & Practical	
			Guides stu	dent teachers to	Activ	rity ant taachars share their	
	Administrative		YouTube. c	n Physical	view	s on Physical controls and	
	controls (ICT		controls ar	nd administrative	admi	inistrative controls after	
	policies and		controls.		watc	hing a short video.	
	administrative		F looming	9 Dreatical	Indo	nondont Ctudy O	
	procedures)		Activity.		Independent Study & Practical Activity Based on the videos watched, student teachers discuss in groups and discuss on Physical controls and administrative		
	, , , , , , , , , , , , , ,		After the s	hort videos on			
			Physical co	ntrols and			
			administra	tive controls.			
			teachers to	o write and	controls using group		
			present in	present in groups examples		entations.	
			of on Physi	ical controls and			
	Clasura	10 mins	administra	tive controls.	Ctud	ant togeher reviewe with	
	Closure	10 mins	controls ar	administrative	Student teacher reviews wit		
			controls w	ith student	admi	nistrative controls with	
			teachers to	o recap concepts	stude	ent teachers to recap	
			learnt.		conc	epts learnt.	
evaluation of	using group presenta	cuss in groups ar ations	ia discuss or	Physical controls a	and ad	ministrative controls	
learning: of, for and as							
learning within the							
lesson	i Cmartabanas						
Resources	ii. Laptops						
	iii. Desktop compute	rs					
	iv. Tablets						
	v. TV and Radio	Decourses (Inclu	uding, VouTu		Janur	ara khan acadamu	
	TESSA)	Resources (inclu	unig. rouru	be, MOOCS-Oueiny	//cours	sera, kildir acaueniy,	
	vii. The iBox (CENDLO	OS)					
	viii. Productivity tool	S					
	ix. Subject based app	blication softwar	e utimodio oru		ام م م ما م	A	
	x. instructional Labol	ratories (with Mi	aitimedia eqt	apment and smart	ooards)	
Required Text (core)	Whitman, Michael E.	., and Herbert J.	Mattord. Prin	nciples of informati	on sec	urity (4 th ed.). Cengage	
	Learning, 20	011.					
	Parliament of Ghana	(2012). Data Pro	otection Act,	2012 (Act 843), Ret	trieve	from Ghana Data	
	Protection (Parliament of Ghana	Commission web	site: <u>https://</u> ic.communic	www.dataprotectio	<mark>01.0rg</mark> . 75) Re	.gn/data-protection-act trieve from website	
				2000 (77	J, Ne		

	https://www.moc.gov.gh/, https://nca.org.gh/								
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from								
	http://laws.ghanalegal.com/acts/id/18/contracts-act								
Additional Reading	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems. John								
List	Wiley & Sons, 2010.								
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy etc)								
CPD needs	Need for seminar on physical controls and administrative controls								
	Writing reflective notes								
	Participating in a community of practice/conferences and accessing online magazines (E-zines) &								
	journals to obtain up to date content on physical controls and administrative controls								
	Team teaching and lesson observation to improve instructional strategies & practices.								
	Supporting student teachers in collaborating in designing and developing a wiki.								

Year of B.Ed.	4	Semest	ester 2 Place of lesson in semester					123	1 2 3 4 5 6 7 8 9 10 11 12			
		1										
Title of Lesson		Legal issu protectio	Legal issues (Introduction, Child & DataLesson3 Hoursprotection) IDuration									
Lesson descriptio	n	In this I protection <i>issues; Co</i>	this lesson, Student teachers will be introduced to legal issues (Child and Data rotection)(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting sues: Core skills. Professional values and attitudes).									
Previous student	t teacher	Student t	eachers ha	ave been i	ntroduced t	to Types o	of secu	rity controls	(Physica	l & Administra	itive	
knowledge, prior	learning	controls)	II									
(assumed)												
Possible barriers	to	Some stu	dent teach	ers might	not have h	ad knowl	edge a	nd understa	nding of	Legal Issues.		
learning in the les	sson											
Lesson Delivery –	chosen	Face-	Practic	Work-	Seminar	Indeper	nde	e-learning		Practicum		
to support studer	nts in	to-face	al	Based	S	nt Stud	y[√	opportuniti	es			
achieving the out	comes	[v]	Activity [√]	Leanin g	[v]]		[v]				
 Lesson Delivery mode of deliver to support teachers in achie learning outcome Overarching what you w students to serves as bas learning outco expanded w the description Write in full a the NTS addr 	- main y chosen student eving the ess. outcome, want the achieve, sis for the comes. An ersion of on. aspects of ressed	Face-to-fa should be E-learning responsib Seminars Practical explain pr Group wo face class WhatsAp suitable d Independ to enable to Open E TESSA) to Student 1 Student 1 <i>3h, 3i, 3</i>	ace – Both e used. g opportun ole use of t – Both inc Activity- st rogress or ork: put stu and also c p, Telegrar levice lent study: student p ducationa o support in Teachers w he legal iss <i>Bk, 3n, 3p</i> onal values	n teacher nities -Stu echnology dividual ar tudent teach barriers to udent teach online. Cre m) to enall : any of th ersonally I Resource ndepende vill: sues and in <i>NTECF:</i> <i>and attit</i>	and studen dent teache y systems. Ind group pro achers will r o learning chers in sma eate a social ole them int ne above me engage with engage with engage with engage with study. mplications <i>Pillars 1, 2</i> tudes)	ers would esentatio eview wo all groups I media gi eract out ethods w n relevant Tube, MC	watch watch n of pro- ork sam to exa roup fo side cla ill inclu t conte DOCS-U	es such as d videos on Y ojects should ples of othe mine variou or each group ass using the nt. Tutors to Idemy/cours	iscussion ouTube/ d be enco er student s issues k o (e.g. Fa eir mobile ent of ind o direct st sera, khar (NTS 2b, ; Core sl	s of varying k videos about puraged. t teachers to both in a face t cebook, e or any other lependent stud tudent teacher n academy, 2c, 3b, 3c, 3d, kills, Assessm	to dy rs	
 Learning Out the lesson, p developed fr course specif Learning indi each learning outcome 	come for icked and om the 'ication cators for 3	CLO4:Det	Outcomes	s	ce of	Le In Explain	arning dicato	g rs egal	Identify cutting transfer inclusivi addressi will the or devel Develop	which c issues – core able sl ty, equity ing diversity. H se be addres oped? skills	ross and kills, and How ssed in	
		statutory ICT requi 3d, 3e, 3l 1, 2 & 3, Assessme attitudes	r, regulator rements. (h, 3i, 3k, 3 crosscuttin ent, Profes	ry and inst NTS 2b, 2 n, 3p NTE ng issues; ssional va	titutional c, 3b, 3c, CF: Pillars Core skills, lues and	issues implic associ ICT	and ations ated w	ith use of	Integrat collabor commun knowled gender a Inclusion reflectio thinking	ion of ation nication, lge on equ and n as well n and cri	ICT, and uity, as tical	

			Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led				
	Sub-topic	Stage/time	collaborative group work or	independent.			
			Teacher Activity	Student Activity			
	Recap of previous	20 mins	Questioning: Tutor uses	Questioning: Student			
	lesson		questioning to recap	teacher answers			
			student teacher's	questions to recap			
			knowledge and	student teacher's			
			understanding on physical	knowledge and			
			controls and	understanding on			
			Use a concept man to link	administrative controls			
			the key points.	Use a concept map to link			
			the key pointsi	the key points.			
	Cyberspace Privacy	75 mins	Face-to- face & e-learning	Face-to-face & Practical			
	Laws and Issues		Guides student teachers to	Activity			
			watch show short videos	Student teachers share			
			from YouTube, on	their views on			
	Child Protection		Cyberspace Privacy Laws	Cyberspace Privacy Laws			
	Laws		and Issues, and Child	and Issues, and Child			
			Protection Laws	Protection Laws as it			
			as it impacts on ICI.	impacts on ICI. And make			
				Cyberspace Privacy Laws			
				and Issues, and Child			
				Protection Laws for			
				whole class discussions.			
	Data protection	75min	Practical Activity.	Independent Study &			
	laws (data		Guides student teachers to	Seminar			
	protection Act 845)		laws (data protection Act	their views on Data			
			843). And make group	protection laws (data			
			presentations	protection Act 843).			
				Student teachers do			
				group presentations for			
				whole class discussions.			
	Lesson Closure	10 mins	Tutor reviews Data	Student teacher reviews			
			protection laws (data	Data protection laws			
			protection Act 843with	(data protection Act 843			
			concents learnt	concents learnt			
Lesson assessments –	Student teachers sha	l are their views o	n Data protection laws (data)	protection Act 843)			
evaluation of learning: of,	Student teachers do	group presentat	ions for whole class discussion	IS.			
for and as learning within		0 11					
the lesson							
Instructional Resources	i. Smartphones						
	ii. Laptops						
	III. Desktop compute	rs					
	v TV and Radio						
	vi. Open Educational	Resources (Incl	uding: YouTube, MOOCS-Uden	v/coursera. khan academy			
	TESSA)	nesources (men		iy, coursera, khan academy,			
	vii. The iBox (CENDLO	OS)					
	viii. Productivity tool	S					
	ix. Subject based app	lication softwar	e				
	x. Instructional Labor	ratories (with m	ultimedia equipment and smar	tboards)			
	xi. Google Classroom	1		,. , ,.th			
Required Text (core)	Whitman, Michael E.	., and Herbert J.	Mattord. Principles of informa	tion security (4" ed.).			
	Cengage Lea	arning, 2011.					

	Parliament of Ghana (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana Data							
	Protection Commission website: https://www.dataprotection.org.gh/data-							
	protection-act							
	arliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from							
	website: <u>https://www.moc.gov.gh/</u> , <u>https://nca.org.gh/</u>							
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from							
	http://laws.ghanalegal.com/acts/id/18/contracts-act							
Additional Reading List	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems.							
	John Wiley & Sons, 2010.							
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy							
	etc)							
CPD needs	Need for seminar on Cyberspace privacy laws and issues							
	Writing reflective notes							
	Participating in a community of practice/conferences and accessing online magazines (E-zines)							
	& journals to obtain up to date content on Cyberspace privacy laws and issues							
	Team teaching and lesson observation to improve instructional strategies & practices.							
	Supporting student teachers in collaborating in designing and developing a wiki.							

Year of B.Ed. 4	Semester 2 Place of lesson in semester 1 2 3 4 5 6 7 8 9 10 1						l0 11 12			
Title of Losson	Logalics	uos (Eloctro	nic Comm	unications) II		Losson	Juration	2 40	urc	
	Legal 155					LESSOIL	Juration	3110	urs	
Lesson description	In this le	this lesson, student teachers will be introduced to Electronic Issues under Legal issues. (National								
	Teacher	eachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting issues; Core skills,								
Previous student	Professi	ojessional values and attitudes).								
teacher knowledge,										
prior learning	Student	leachers ha	ave been in	itroduced to L	egal issues (Intr	oduction,	Child & Da	ta pro	itection) I	
(assumed)					<u> </u>					
Possible barriers to	Some st	udent teacr	iers might i	not have had i	knowledge and	understan	iaing of Leg	ai issu	les in ICT.	
Lesson Delivery –	Face-	Practical	Work-	Seminars	Independe	nt	e-learning		Practicum	
chosen to support	to-	Activity	Based	[V]	Study [√]		opportuni	ties		
students in achieving	face [[V]	Learnin				[v]			
the outcomes	٧J		g							
mode of delivery	Face-to-	face – Bot	h teacher	and student-	led approaches	such as	discussion	s of v	varying kinds	
chosen to support	should b	e used.							, 0	
student teachers in	E-learni	ng opportui	nities -Stud	ent teachers	would watch vid	leos on Yo	ouTube/vid	eos ab	oout	
achieving the learning	responsi	ible use of t	echnology	systems.	station of projo	sta abould	he encour	aaad		
outcomes.	Practica	I Activity- st	tudent tead	chers will revie	ew work sample	s of other	student te	ageu. acher	s to explain	
	progress	s or barriers	to learning	3						
	Group w	vork: put stu	udent teach	ners in small g	roups to examir	ne various	issues bot	h in a	face to face	
	class and	d also online	e. Create a	social media g	group for each g	roup (e.g.	Facebook,	What	sApp,	
	Ielegrar	n) to enable	e them inte	ract outside c	lass using their i ods will include	nobile or	any other s	andon	le device	
	enable s	tudent pers	sonally eng	age with relev	ant content. Tu	tors to dir	rect studen	t teacl	hers to Open	
	Educatio	onal Resource	ces (e.g. Yo	uTube, MOO	CS-Udemy/cours	era, khan	academy,	TESSA) to support	
	indepen	dent study.								
Overarching	Student	teachers wi	ill:							
outcome, what	Explain t	the legal iss	ups and im	nlications ass	ociated with us	a of ICT (NTS 2h 2c	36 3	c 3d 3o 3h	
students to	3i, 3k, 3	Bn, 3p NTE	CF: Pillars	1, 2 & 3, cros	scutting issues	; Core ski	ills, Assessi	ment,	Professional	
achieve, serves as	values a	nd attitude	es)		5					
basis for the										
learning outcomes.										
An expanded version of the										
description.										
• Write in full										
aspects of the NTS										
addressed	Learning	Quitcomes			Learning	ndicators	Identi	fv v	which cross	
for the lesson,	Leannig	Soucomes			Leaning	indicators	cuttin	g issue	es – core and	
picked and							transf	erable	skills,	
developed from							inclusi	ivity,	equity and	
the course							addre	ssing	diversity.	
specification	CLO4:De	emonstrate	compliance	e of	Explain the leg	al issues	These	stra	ategies will	
• Learning indicators		y, regulator nents /NITC	y and instit 2h 2c 2h		anu implicatio	lis h lise of lû	respoi	u to	inclusivity	
outcome	3h, 3i, 3	k, 3n, 3p N1	TECF: Pillar	s 1, 2 & 3,			tool	for	expanding	
	crosscut	ting issues;	Core skills	,			learni	ng	to diverse	
	Assessm	nent, Profes	sional valu	es and			learne	ers eg.	People with	
	attitude	rs)					visual		impairment,	

					dyslexia, dysgraphia). Identify the instances when personal, cultural, and institutionalized discrimination are creating and/ or sustaining disadvantages for some student- teachers	
			Teaching and	d learning activi	ties to achieve outcomes	
			depending o	n the delivery n	node selected. Teacher-led	
	Sub-topic	Stage/time	collaborative	e group work or	independent.	
			Teacher Activ	vity	Student Activity	
	Recap of	15 mins	Questioning:	: Tutor uses	Questioning: Student teacher	
	previous lesson		questioning t	to recap	answers questions to recap	
			student teacl	her's	student teacher's knowledge	
			knowledge a	nd	and understanding of data	
			understandin	ng of data	protection laws using concepts	
			protection la	wsusing	maps to link the key points.	
			concepts ma	ps to link the		
			key points.			
	Electronic	75 mins	e-learning,	discussion &	e-learning and discussion:	
	communications		Practical se	ession: Tutor	Student teacher watches	
	laws (electronic		shows sh	ort videos	videos on Electronic	
	communications		introducing	student	Communications Laws.	
	act 775)		teachers	to Electronic	Student teachersworks in	
			Communicat	Ions Laws.	small groups and make a	
			toochors to	work on the		
			clamonts of	the Electronic	discussions.	
			Communicati	ions laws in		
			small groups			
		75 Mins	Ouestioning		Questioning:	
		7.5 101113	Tutor leads s	tudent	Student teacher discusses	
			teachers to d	liscuss	Electronic Communications	
			Flectronic	130035	Laws and make group	
			Communicati	ions Laws	presentations for whole class	
			PowerPoint r	presentations	discussions	
			could be use	d		
	Lesson Closure	15 mins	Tutor uses au	uestioning to	Student teacher answers	
			recap the cor	ncepts learnt	questions to recap the	
			in the lesson	-	concepts learnt in the lesson.	
Lesson assessments –	Student teacher di	iscusses Electronic	Communicatio	ons Laws and m	ake group presentations for	
evaluation of learning:	whole class discus	sions.				
of, for and as learning						
within the lesson						
Instructional Resources	i. Smartphones					
	ii. Laptops					
	iii. Desktop computers					
	IV. Tablets					
	v. IV and Radio					
	vi. Open Education	iai Resources (Incl	uaing: YouTub	e, NUUULS-Uder	ny/coursera, khan academy,	
	IESSA) VII The IRAY (CENIT					
	viii Productivity to	nols				
	ix Suhiert hased a	nnlication softwa	re			
	x. Instructional Lak	poratories (with m	ultimedia equi	ipment and sma	rtboards)	
	xi. Google Classroo	om				
Required Text (core)	Whitman, Michael E., and Herbert J. Mattord. Principles of information security (4 th ed.) Cengage					
,	Learning,	2011.				
	Parliament of Ghana (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana Data					

	Protection Commission website: https://www.dataprotection.org.gh/data-protection-act						
	Parliament of Ghana (2008). Electronic communications act 2008 (775), Retrieve from website:						
	https://www.moc.gov.gh/, https://nca.org.gh/						
	Parliament of Ghana. Law of Contract (act 25, 1960), Retrieve from						
	http://laws.ghanalegal.com/acts/id/18/contracts-act						
Additional Reading List	Anderson, Ross J. Security engineering: a guide to building dependable distributed systems. John						
	Wiley & Sons, 2010.						
	Selected articles and online resources (youtube.com, MOOCs: Khan Academy, TESSA, Udemy etc)						
CPD needs	Need for seminar on Electronic communications laws (Electronic Communications Act 775)						
	Writing reflective notes						
	Participating in a community of practice/conferences and accessing online magazines (E-zines) &						
	journals to obtain up to date content on Electronic Communication						
	Team teaching and lesson observation to improve instructional strategies & practices.						
	Supporting student teachers in collaborating in designing and developing a wiki.						

Year of B.Ed. 4 Semester 2

Place of lesson in semester

1 2 3 4 5 6 7 8 9 10 **11** 12

Title	e of Lesson	Legal issues (Contracts) III			Less	Lesson Duration		3 Hours			
Loca	on description	In this lesson. Student teachers will be introduced to contracts under Logal Issues //						os (National			
Less	ondescription	Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 2d, 2n/NTECE: Dillar crosscutting issues: C						· Core skills			
		Professional values and attitudes).									
Prov	vious student teacher	Student tea	Student teachers have been introduced to Legal issues (Electronic Communications) II								
kno	wledge, prior learning	Student tea									
(ass	umed)										
Pos	sible barriers to learning in	Some studer	Some student teachers might not have had knowledge and understanding of legal issues and							al issues and	
the	lesson	its impact or	its impact on ICT.								
Less	on Delivery – chosen to	Face-to- Practical Work- Seminar Independent e-learning Practicum									
sup	port students in achieving	face [√ A	Activity	Based	S	Study ['	√]	opportu	nities		
the	outcomes] [v]	Learning	[V]			[V]			
Less	on Delivery – main mode	Face-to-face	e – Both tea	acher and s	tudent-led a	pproache	es such a	as discuss	ions of v	varying kinds	
of d	lelivery chosen to support	should be us	sed.								
stuc	lent teachers in achieving	E-learning o	pportunitie	es -Student	teachers wo	ould watch	h videos	on YouTu	ıbe/vide	os about	
the	learning outcomes.	responsible	use of tech	nology syst	ems.						
		Seminars – E	Both indivio	dual and gro	oup presenta	ation of p	orojects s	hould be	encoura	ged.	
		Group work:	: put stude	nt teachers	in small gro	ups to exa	amine va	arious issu	ues both	in a face to	
		face class an	id also onlir	ne. Create a	i social medi	a group fo	or each	group (e.g	g. Facebo	ook,	
		whatsApp, I	l elegram) t	o enable th	em interact	outside c	class usin	ig their m	obile or	any other	
		suitable devi	ice	w of the ob	ava mathad	امما النبي		lomont o	findana	ndont study	
		to onable stu	udont porce	iy of the ab	ove methous	s will incli		ernent o	r muepe	ndent study	
		to enable student personally engage with relevant content. Tutors to direct student teachers									
		to Open Educational Resources (e.g. You Lube, MOOCS-Odemy/coursera, knan academy,									
	Overarching outcome	Student teac	pport mue	pendent sti	uuy.						
•	what you want the	Explain the l	Suueni leadiers will:								
	students to achieve	30 3h 3i 3	Explaint the legal issues and implications associated with use of ICT (NIS 20, 20, 30, 30, 30, 20, 20, 21, 20, 20, 20, 30, 30, 30, 20, 20, 20, 20, 20, 20, 20, 20, 20, 2								
	serves as basis for the	Je, Ji, Ji, Ji, Ji, Ji Ji Vieer. Filiais 1, 2 & J, Closscalling Issues, Core skills, Assessment, Professional values and attitudes)									
	learning outcomes. An	··· , ····		,							
	expanded version of the										
	description.										
•	Write in full aspects of										
	the NTS addressed										
•	Learning Outcome for the	Learning Ou	tcomes	l	earning	Id	dentify v	which cro	oss cutti	ng issues –	
	lesson, picked and			1	ndicators	СС	ore and	transfera	ble skills	s, inclusivity,	
	developed from the					e	quity and	d address	ing divei	rsity.	
	course specification	CLO4:Demor	nstrate	Expla	in the legal	Tł	hese s	trategies	will ı	respond to	
•	Learning indicators for	compliance	of statute	ory, issue	s and	in	nclusivity	and equ	ity (ie I	CT as a tool	
	each learning outcome	regulatory	ä	and impli	cations	fo	or expa	inding le	earning	to diverse	
		institutional		ICT assoc	ciated with u	ise le	earners	eg. Pe	ople v	with visual	
		requirement	ts.	of IC	Г	in	npairme	nt, dys	lexia,	dysgraphia).	
		(NTS 2b, 2c,	3b, 3c, 3d,	Зе,		Id	dentify t	he instan	ces whe	en personal,	
		3h, 3i, 3k, 3r	n, 3p NTECI	5:		CL	ultural,	and	inst	itutionalized	
		Pillars 1, 2 &	<i>i 3,</i>			di	iscrimina	ation are	creati	ng and/ or	
		crosscutting	issues; Col	re		SL	ustaining	g disadva	antages	for some	
		SKIIIS, ASSESS	sment, Lugiuga are	.		st	lucent-te	eachers.			
		Projessional	i values an	u							
		attituaesj									

	Sub-topic	Stage	Teaching and learning activities to achieve outcomes dependi on the delivery mode selected. Teacher-led collaborative grou work or independent.			
		/time	Teacher Activity	Student Activity		
	Recap lesson on Electronic Communica tion Laws as RPK	20	Face-to-face: Tutor recaps on Electronic Communication Laws .(PDG Theme 2)	e-learning & Seminar Student teachers discusses on Electronic Communication Laws to recap the precious lesson.		
	Law of Contract (act 25, 1960)	140 Mins	e-learning Shows short videos from YouTube on Law of Contract (act 25, 1960) Practical session: Tutor leads student teachers to work on some examples of Law of Contract (act 25, 1960) in small group and make a presentation.	e-learning & Seminar Student teachers watch videos from YouTube on Law of Contract (act 25, 1960); make notes from the videos for small group's discussion. Practical session: Student teacher work on some examples of Law of Contract (act 25, 1960) in small group and make a presentation.		
	Lesson Closure	20 mins	Tutor reviews Law of Contract (act 25, 1960), with student teachers to recap concepts learnt.	Student teacher reviews Law of Contract (act 25, 1960), with tutor to recap concepts learnt.		
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	Student teacl to ICT, in sma	her reviev Ill groups.	vs Law of Contract (act 25, 19	60), with tutor with its implications		
Instructional Resources	 i. Smartphones ii. Laptops iii. Desktop computers iv. Tablets v. TV and Radio vi. Open Educational Resources (Including: YouTube, MOOCS-Udemy/coursera, khan academy, TESSA) vii. The iBox (CENDLOS) viii. Productivity tools ix. Subject based application software x. Instructional Laboratories (with multimedia equipment and smartboards) xi. Google Classroom 					
Required Text (core)	Whitman, Mi Ceng Parliament of Data prot Parliament of http://laws.g	chael E., a gage Lear f Ghana (2 a Protectio <u>ection-ac</u> f Ghana (2 site: <u>http:</u> f Ghana. L <u>hanalega</u>	., and Herbert J. Mattord. <i>Principles of information security</i> (4 th ed.). arning, 2011. a (2012). Data Protection Act, 2012 (Act 843), Retrieve from Ghana ction Commission website: <u>https://www.dataprotection.org.gh/data- act</u> a (2008). Electronic communications act 2008 (775), Retrieve from <u>tps://www.moc.gov.gh/</u> , <u>https://nca.org.gh/</u> a. Law of Contract (act 25, 1960), Retrieve from gal.com/acts/id/18/contracts-act			
Additional Reading List	Anderson, Rc syste Selected artic Udemy etc)	oss J. <i>Secu</i> ems. John cles and o	rity engineering: a guide to bu Wiley & Sons, 2010. nline resources (youtube.com	uilding dependable distributed n, MOOCs: Khan Academy, TESSA,		

CPD needs	Need for seminar on Law of Contract (Act 25, 1960)
CI D needs	Need for seminar on Law of contract (Act 25, 1500)
	Writing reflective notes
	Participating in a community of practice/conferences and accessing online magazines (E-
	zines) & journals to obtain up to date content on Law of Contract (Act 25, 1960)
	Team teaching and lesson observation to improve instructional strategies & practices.
	Supporting student teachers in collaborating in designing and developing a wiki.

Year of B.Ed. 4	Semester	Semester 2 Place of lesson in semester			ester	1 2 3 4 5 6 7 8 9 10 11 12			
Title of Lesson	Legal issu	Legal issues (Anti-spam & privacy) IV Lesson Duration 3 Hours							
Lesson description	In this le	In this lesson, Student teachers will be introduced to Anti-Spam and privacy under Legal							
	issues.(No	issues.(National Teachers' Standard: 1a, 1b, 3b, 3c, 3e, 3d, 3n/NTECF: Pillar crosscutting							
Previous student teacher	Student to	eachers have	e been intro	alues and attr aduced to Lega	tuaes). al issues (Contract	s)		
knowledge, prior learning					1135465 (contract	5, 11		
(assumed)									
Possible barriers to learning	Some stu	dent teache	rs might no	t have had kn	owledge	and und	erstan	ding of An	ti-Spam and
In the lesson	privacy ui	nder Legal Is	sues and its	Seminars	Indene	ndent	م امع	rning	Practicum
support students in	face [V	Activity	Based	[V]	Study [vl		rtunities	Fracticum
achieving the outcomes]	[V]	Leaning		,[- 1	[V]		
Lesson Delivery – main							•		
mode of delivery chosen to	Face-to-fa	ace – Both t	eacher and	student-led a	pproache	s such a	s discu	ssions of v	arying kinds
support student teachers in	should be	used.						Tula da la la	
achieving the learning	responsib	g opportunit	chology sy	it teachers wo	uld watch	1 videos	on You	Tube/vide	os about
outcomes.	Seminars	– Both indiv	idual and g	roup presenta	tion of p	roiects sł	nould b	e encoura	ged.
	Practical	Activity- stu	dent teache	ers will review	work san	nples of o	other s	tudent tea	ichers to
	explain p	rogress or ba	arriers to lea	arning					
	Group wo	ork: put stud	lent teachei	rs in small grou	ups to exa	amine va	rious is	sues both	in a face to
	face class	face class and also online. Create a social media group for each group (e.g. Facebook,							
	WhatsAp	WhatsApp, Telegram) to enable them interact outside class using their mobile or any other							
	Independ	Independent study: any of the above methods will include an element of independent study							
	to enable	to enable student personally engage with relevant content. Tutors to direct student teachers							
	to Open E	to Open Educational Resources (e.g. YouTube, MOOCS-Udemy/coursera, khan academy,							
	TESSA) to	TESSA) to support independent study.							
 Overarching outcome, 	Student t	Student teachers will:							
what you want the	Explain th	explain the legal issues and implications associated with use of ICI (NIS 20, 20, 30, 30, 30, 30, 31, 31, 31, 31, 31, 31, 31, 31, 31, 31							
serves as basis for the	Professio	Professional values and attitudes)							
learning outcomes. An									
expanded version of the									
description.									
• Write in full aspects of	:								
the NTS addressed	Loorning	Outcomos		Loorning Ind	icators	Idonti	function	sh cross ci	utting issues
• Learning Outcome for the lesson nicked and	Learning	Outcomes		Learning mu	icators		ry wrno re ano	d transfe	rahle skills
developed from the						inclus	ivitv. e	auity and	addressing
course specification						divers	ity. ⊢	low will	these be
• Learning indicators for						addre	ssed or	^r develope	d?
each learning outcome	CLO4:Der	nonstrate	Exp	lain the legal i	issues	These	strate	egies will	respond to
	complian	ce of statuto	ory, and	dimplications	().07	inclus	ivity ar	nd equity	(ie ICT as a
	regulator	y and	ass	ociated with u	ise of ICI	tool	for ex	panding	learning to
	requirem	ial ICT ents (NTS 2 4	n. 2c			visual	ie iear im	ners eg. I nairment	dvslevia
	3b, 3c. 3d	. 3e, 3h. 3i.	3k.			dvsgra	aphia).	Identifv tl	he instances
	3n, 3p NT	ECF: Pillars	1, 2			when	pers	onal, cu	Itural, and
	& 3, cross	cutting issu	es;			institu	itionali	zed discrir	nination are
	Core skills	s, Assessmei	nt,			creati	ng a	nd/ or	sustaining
	Professio	nal values a	nd			disadv	/antage	es for sor	ne student-
	attitudes)	1			I teach	ers		

	Sub-topic	Stage/time	Teaching and learning activities to achieve outcomes depending on the delivery mode selected. Teacher-led collaborative group work or independent.						
			Teacher Activity	Student Activity					
	Recap lesson on Law of contract.	15min	Face-to-face: Tutor/lecturer recaps previous lesson on Law of contract. (PDG Theme 2)	e-learning & Seminar Student teachers discuss the previous lesson on Law of contract.					
	Anti-Spam Laws	75 Mins	e-learning Shows short videos explaining Anti-Spam Laws Tutor then discusses these concepts with students	e-learning & Seminar Student teachers watch videos from YouTube on Anti-Spam Laws; make notes from the videos for small group's discussion.					
	Privacy Vs. Civil Liberties	80 Mins	Practical session: Tutor leads student teachers to discuss Privacy Vs. Civil Liberties. Tutor breaks student teachers into groups.	Practical session: Student teacher discusses in their groups Privacy Vs. Civil Liberties.Work in small groups and make presentations for whole class discussions					
	Lesson Closure	10 mins	Tutor reviews Privacy Vs. Civil Liberties with student teachers to recap concepts learnt in the course.	Student teacher reviews with tutor Privacy Vs. Civil Liberties, to recap concepts learnt in the course.					
Lesson assessments –	Student teache	ers write on the	following in their notes;						
evaluation of learning: of,	Anti-Spam laws								
for and as learning within	Analyze Privacy	/ policies							
the lesson	Upt In VS Upt out International impact on privacy policies								
	 Legality and ethics of spyware and other malware 								
	• P	Privacy vs civil liberties							
	RFID (Radio Fre	equency ID) issu	es						
Instructional Resources	i. Smartphones								
	ii. Laptops	_							
	iii. Desktop cor	nputers							
	v TV and Badic	, ,							
	vi. Open Educa	, tional Resource	s (Including: YouTube, MOOCS-U	Idemy/coursera, khan					
	academy,								
	TESSA)								
	vii. The iBox (C	ENDLOS)							
	ix. Subject base	y tools	oftware						
	x. Instructional	Laboratories (v	vith multimedia equipment and s	smartboards)					
	xi. Google Class	sroom							
Required Text (core)	Whitman, Mich	nael E., and Herl	bert J. Mattord. Principles of info	rmation security (4 th ed.).					
	Parliament of (ge Learning, 20 Shana (2012) D	11. ata Protection Act 2012 (Act 843	3) Retrieve from Ghana Data					
	Protec	ction Commissio	on website: https://www.datapro	otection.org.gh/data-					
	protec	ction-act							
	Parliament of C	Ghana (2008). El	lectronic communications act 20	08 (775), Retrieve from					
	Websi Parliament of (te: <u>https://www</u> Shana Law of C	v.moc.gov.gn/ , <u>https://nca.org.g</u> ontract (act 25, 1960), <u>Betrieve</u> f	n/ rom					
	http://laws.gha	analegal.com/a	cts/id/18/contracts-act						
Additional Reading List	Anderson, Ross	J. Security eng	ineering: a guide to building depe	endable distributed systems.					
	John \	Viley & Sons, 20	010.						
	Selected article	es and online re	sources (youtube.com, MOOCs: I	Khan Academy, TESSA, Udemy					
	eicj								

CPD needs	Need for seminar on Analysis of Privacy policies						
	Opt in vs Opt out						
	 International impact on privacy policies 						
	 Legality and ethics of spyware and other malware 						
	Privacy vs civil liberties						
	RFID (Radio Frequency ID) issues						
	Writing reflective notes						
	Participating in a community of practice/conferences and accessing online magazines (E-						
	zines) & journals to obtain up to date content on Privacy policies						
	Interacting with View Controllers.						
	Team teaching and lesson observation to improve instructional strategies & practices.						
	Supporting student teachers in collaborating in designing and developing a wiki.						
Course Assessment	¹ Component 1: Portfolio Assessment: (30% overall score)						
	 Selected items of students work (3 of them – 10% each)- 30% 						
	 Midterm Assessment – 20% 						
	 Reflective Journal – 40% 						
	 Organisation of subject portfolio – 10% (how it is presented/organized) 						
	² Component 2: Subject Project (30% overall semester score)						
	 Introduction a clear statement of aim and purpose of the project – 10% 						
	 Methodology: what the student teacher has done and why to achieve the purpose 						
	of the project – 20%						
	 Substantive or main section – 40% 						
	Conclusion – 30%						
	Component 3: End of Semester Examination – 40% overall						

¹ See rubric on Subject Portfolio Assessment in Annex 6 of NTEAP ² See rubric on Subject Project Assessment in Annex 6 of NTEAP

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