YEAR 2

**SEMESTER 1** 

# Four-Year B.Ed. Course Manual

# ENVIRONMENTAL EFFECT OF AGRICULTURE AND ENTREPRENEURSHIP











### The Government of Ghana









### **FOREWORD**

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

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

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

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

Professor Mohammed Salifu Director General, Ghana Tertiary Education Commission

### **ACKNOWLEDGEMENTS**

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

A participatory team approach was used to produce these sets 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 copies 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 is approach used to produce these manual.

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

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

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### INTRODUCTION TO COURSE MANUALS

Welcome to this B.Ed. Course manual.

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

#### The manuals serve the following purposes:

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

#### Specifically, they also:

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

### Who are course manuals for:

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

### **USING THIS MANUAL**

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

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

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

#### A. Course information

**Title Page** 

**Environmental Effects of Agriculture and Entrepreneurship** 

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

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

i. Course Details: as in course specification unless important reason why not

Pre-	WASSCE/SSSCE/Diploma in Agriculture.						
requisite/s							
Co-Requisites	Links to other	Links to other courses being taught, support coherence in student experience and avoid duplication					
Course Level	Course	Credit					
	Code	Value					

#### **Table of Contents**

#### 1. Goal for the Subject or Learning Area

In the first semester of year two, student teachers will be exposed to relevant industrial and entrepreneurial skills which could enable them function successfully in life

#### 2. Key contextual factors

Ghana is a developing country with high unemployment, especially among the youth. This unemployment situation could be addressed by designing and implementing well-structured agricultural programmes to equip these teeming youth with employable skills. In the first year student teachers were introduced to the general TVET domains. In the second year student teachers are expected to be introduced to a more specialised area in agriculture as one of the TVET domains.

#### 3. Course Description

This course is designed for the student teacher to concentrate on the domain of his/her specialization in Agriculture. The student teacher will be introduced to agribusiness principles, especially, to concepts in agriculture value chain and business plan development. Student teacher is supposed to observe classroom and wider school activities. Student teacher will reflect on experiences in his/her school placement and apply concept in agriculture, plan and address some of the issues of safety, health and hygiene, diversity, inclusivity and access. Student teacher is to build portfolio reflecting understanding of his/her learning environment, showing growing comprehension and application of concepts of inclusivity, equity, access for all student teachers irrespective of ability, gender or socio-economic status and cultural background. The reflection on student teacher's professional practice must also encompass the national value of honesty, critical thinking and integrity. This adequately prepares the student teacher to finally settle on his/her area of specialisation within the Agriculture sub-domains. This course shall be delivered by using face to face interaction between the tutor and student teachers, practical activities, seminars, work based learning, independent study and e-learning. Student teachers shall be assessed on portfolio, report writing, observations, reflective practice, written examination and test. Written examination and test shall form only 30% of the assessment. It is expected that student teachers would be equipped to manage transition from this level to senior high school to college. (NTS 3c, p11, 14; NTECF p.39; NTS p 6, 10; NTS 1f, p.19; NTECF p. 33)

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

Core and transferable skills: Problem-solving skills (CLO1,2,3,4), personal motivation (CLO1, 2,3,4,5) civic literacy, team-work/collaborative skills, analytical skills, critical thinking, creative and innovative skills, inquiry (CLO1-5).

Cross-cutting issues: Gender, equity and inclusivity, professional attitudes and values, assessment strategies, action research, reflective thinking

This can be found in the course specification. Which core and transferable skills or cross cutting issues will be applied or developed through this course? This needs to be made explicit to student teachers. Are there specific issues to do with equity and inclusion which must be addressed so that all student teachers can fully take part? For example, issues related to gender and mathematics or science.

5. Course Learning Outcomes	6. Learning indicators
By the end of the course, Students teachers will be	
able to:	1.1 Develop an album of safety devices and their uses in agriculture
CLO.1 demonstrate knowledge and understanding of health, safety and environmental issues in agriculture	1.2 Make a video on demonstration of the use of safety devices in agriculture
(NTS 3c , p11, 14; NTECF p.39)	1.3 Develop an album of pest and diseases affecting specific crop plants, animals and fish.

	<ol> <li>1.4 Write a report on control measures of pests and disease in specific crops, animals and fish.</li> <li>1.5 Make a catalogue/make a pre-video recording on the negative effect on the use of agricultural input and farm implements on the environment.</li> <li>1.6 Build a portfolio on issues of safety, health and hygiene in the environment during school placement and find solutions to observed challenges.</li> </ol>
CLO. 2 demonstrate understanding of entrepreneurial skills relevant for agricultural graduates to go into self-employment (NTS p 6, 10)	2.1 Write a report on agriculture value chain analysis. 2.2 Write a report on a business plan for agricultural enterprises that takes into consideration: i. identified business opportunities in the area of farming, value addition, and supply chain ii. resource mobilisation (financial, human and material) iii. entrepreneurial skills to manage and grow the business iv. marketing of agricultural goods and services
CLO.3 demonstrate knowledge and skills of agriculture through building portfolio with the support of the mentor (NTS 1f, p.19; NTECF p. 33)	3.1 Build a portfolio on the professional teacher values and attitudes, observed in the learning environment during the school placement session.

### 7. Course content

In the course specification. This should provide an outline of the academic and / or practical content of the course. It should be clear how this content relates to the achievement of the intended learning outcomes. The name of each unit in the course should be *briefly* set out – the name should make it clear what the unit is about.

Unit Topic Sub-tonic (If any) Teaching and learning activities to

Unit	Topic	Sub-topic (If any)	Teaching and learning activities to achieve the learning outcome
1	Health, Safety and Environmental Issues in Agriculture (8 weeks)	Crop husbandry and horticulture  Causes, symptoms, prevention and control of crop diseases.  Pests of crop plants and their control  Nursery/Farm hygiene/sanitation  Effects of environmental variables on crop/ornamental plants production.  Animal Husbandry and Fishing  Causes, symptoms, diagnosis, treatment and control of animal and fish disease.  Disinfection and hygiene of farm and fish structures  Zoonotic diseases  Effects of environmental variables on animal and fish performance.	<ul> <li>Discuss the causes, symptoms, prevention and control of crop/fish/animal pest and diseases.</li> <li>Visit to college farms/ agricultural industries to take pictures on safety devices to create an album of safety devices and their uses in agriculture. Take into consideration students with disability.</li> <li>Carry out hands-on practicals on crops, animals and fish farms/garden to demonstrate how to use safety devices. Take into consideration students with disability.</li> <li>Visit to college farms to take pictures or do internet search on crop, fish and animal pests and diseases to create an album.</li> <li>Carry out hands-on practicals through demonstration on how to apply pesticides to crop plants, accaricides and dewormers, etc. on animals.</li> <li>Emphasis should be on students with disability. 1200</li> <li>Carry out farm practicals to observe symptoms and signs of diseases in crop plants, animals and fish. Emphasis should be on students with disability.</li> </ul>

			Take pictures from community water bodies, mining sites, degraded agricultural lands, etc. to create a catalogue on negative effects of the use of man-made activities on agricultural lands and the environment. Emphasis should be on students with disability
2	Agribusiness and Entrepreneurship (4 weeks)	<ul> <li>Meaning of agribusiness and entrepreneurship</li> <li>Business plan for agricultural enterprises</li> </ul>	<ul> <li>Discuss the meaning of agribusiness, entrepreneurships and business plan for agricultural enterprises</li> <li>Discuss and develop value chains for different agricultural commodities (cabbage, tilapia, guinea fowl, etc.).</li> <li>Collect data from actors in the agricultural value chain (producer, input dealer/suppliers, agro processors, financial institutions, consumers, etc.) to produce a business plan</li> <li>Group presentation on the business plan</li> </ul>

#### 8. Course Assessment Components

In the course specification. The NTS and the NTECF require a move away from largely examination-based assessment to strategies to enable assessment of student teachers' skills, knowledge and understanding against the learning outcomes and through these the against the NTS

- There should be a maximum of 3 assessment components per 3 credit-course; to avoid over loading student and tutors/ lecturers
- The learning outcomes to be assessed by each assessment component should be identified.
- Each assessment component should explicitly reference the NTS or aspects of the NTS it will assess.
- Each assessment component should include:
  - The category or type, for example: written, coursework or practical, teaching, examination, collaborative project or presentation, poster, TLM
  - The type of assessment: of, for and /or as.
  - An indication of the size of each assessment component (e.g. duration of exams, word limit of written submissions, length of presentations; whether presentations have an individual or group etc.).
  - The weighting of each assessment component should be expressed as a % of total course mark (overall in each course: 60% continuous assessment of course work, 40% examination of course work).
- Each assessment should be manageable and relevant to supporting the student teachers' development.

The guidance on assessing student teachers from the NTS, the NTECF the CWG and the New Four Year B.Ed. should be used.

Assessment Type: Assessment as Learning (Subject Portfolio)

Category of Assessment: Component 1

Student teachers assessed on the following:

- Selected items of student work (3 of them -10% each)
- Midterm Assessment-20%
- Reflective journal 40%
- Organization of subject portfolio (how it is presented and organized)

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

**Summary of Assessment Methods** 

**Assessment Type: Assessment for Learning (Subject Project)** 

Category of Assessment: Component 2

Maximum Duration: 3 hours
Students teachers are assessed on:

- Introduction- a clear statement of the purpose and specific objectives of the project
- Methodology-20%
- Substantive or main section -40%
- Conclusion 40%

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

**Summary of Assessment Methods** 

Assessment Type: Assessment of Learning (Examination)

**Category of Assessment: Component 3** 

Maximum Duration: 3 hours
Students teachers are assessed on:

Examination 40%

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

#### 9. Teaching and learning strategies

Detail in this section should show how the total learning hours will be used to achieve the intended learning outcomes, to provide a guide to the teaching and learning strategies to be used. Each teaching strategy should be selected as most appropriate to achieving the learning outcomes. This may include team teaching or additional tutors. As stated in the B.Ed. experiential learning and interactive teaching approaches are encouraged

#### 10. Required Reading and reference list

One or two compulsory texts which must be made available to the student teachers and a SHORT list of 5 relevant references. These lists should be annotated with the key value of each text. Use APA style of writing.

#### 11. Teaching and Learning Resources

Instructional resources required to support learning during the course e.g.: TLMs, lab and workshop equipment, videos, projectors

#### Course related professional development for tutors/ lecturers

This is not included the course manual but professional development needs must be identified to ensure all tutors / lecturers are prepared to teach the course identify any specific topics or issues which may be challenging for tutors / lecturers.

Year of B.Ed.	2	Semester	1	Place of lesson in semester	123456789101112
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Title of Lesson	Health, safet Diseases)	Health, safety and environmental issues in Agriculture (Crop Diseases)  Lesson Duration 180 minutes								
Previous student teacher knowledge, prior learning (assumed) Possible barriers to learning in the lesson	This lesson is designed for the student teacher to concentrate on his/her specialization in Agriculture. The lesson is concerned with crop diseases, their causes, symptoms, prevention and control of crop measures. This lesson shall be delivered by using face to face interaction between the tutor and student teachers, practical activity and e-learning. Student teachers shall be assessed on portfolio and report writing. Issues of diversity, inclusivity and gender should be addressed in the classroom.  Student Teachers are:  Familiar with diseased crop-plants  Gender and inclusivity issues on how to use safety devices									
Lesson Delivery – chosen to support students in achieving the outcomes		actical tivity	Work-Based Leaning	Seminars	Independent Study	e-learning opportunities V	Practicum			
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.  • Purpose for the lesson, what you want the	<ul> <li>Use inte</li> <li>Use groudevices in Use groudereate and Use e-leadereate</li> <li>The purification</li> </ul>	up to gein crop pup to gen album carning c	t student tead production t student tead topportunities this lesson is	thers to carry o thers to visit co to write a repo	llege farms to ta	oic cticals on how to ke pictures of dis asures of disease o know the caus	eased crops to s in specific			
students to achieve, serves as basis for the learning outcomes. An expanded version of the description.  Write in full aspects of the NTS addressed	prevention and control of crop diseases									
Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for	Learning Or end of the le teacher will	esson, t	he student	Learning Indica	is: sk di	entify which cros sues – core and t ills, equity and a versity. How will ldressed.	ransferable ddressing			
each learning outcome	Demonstrate understandir symptoms, p control of cro	ng of the prevention	e causes, on and	<ul><li>crop disea</li><li>Explain an report on</li></ul>	d write a control of diseases •	involvement o	ng Is through Is through			

Topic Title	Sub-topics (if any):	Stage/Time	Teaching and Learning Activity to achieve learning		
			outcomes depending on the delivery mode selected.		
			Teacher led, collaborative group work or independent		
			Teacher Activity	Student Activity	
Preparations for use of	Self-Introduction		Self Introduction	Self Introduction	
course manual and Pre-	(If Tutor is new to	1/	Through face-to-face	Tutor and Student-	
Learning interactions	the Class)	30 Minutes	interaction, Tutor and	teachers do self-	
			student-teachers introduce	introduction	
			themselves	Introduction of Course	
	Introduction to			<u>Outline</u>	
	Environmental		Introduction of Course	Student-teachers discuss	
	Effects of Agriculture		Outline Tutor initiates discussion on	the manual and what	
	and Entrepreneurship		the course manual	they expect to learn after studying the course	
	course manual		emphasizing on the	arter studying the course	
	course mariaar		objectives, learning	Introduction of Lesson	
			outcomes, course content	Student teachers answer	
			and reference material	questions and do brief	
				discussions. Student	
	Relevant Previous		Introduction of Lesson	teachers describe both	
	Knowledge		Tutor facilitates student	plants.	
			teachers revision of their		
			knowledge of the lesson		
			from pre-tertiary and observation from the		
			environment. Tutor to bring		
			diseased and healthy crop		
			plants to class.		
Health, safety and		2	Discussion	Discussion	
environmental issues in		50 minutes	Tutor uses interactive	Student teachers listen,	
Agriculture (Crop Diseases)			lecture to explain causes,	contribute to the	
			symptoms, prevention and	discussion and write	
			control of crop diseases	down important points	
		3	Farm Visit	Creation of Album	
		50 minutes	Tutor guides student teachers to form mixed	Student teachers visit to	
			groups and facilitate to visit	crop farms in groups on the subject matter, and	
			crop farms to take pictures	take pictures from	
			and create album on	different crop farms and	
			diseased crops	create an album on	
				diseased crops	
		4	Report Writing	Report Writing	
		50 minutes	Tutor guides student	They write report on	
			teachers and facilitate	control measures of	
			individual report writing on control measures of	diseases in specific crops	
			diseases in specific crops		
			alseases in specific crops		
			NB: Tutors are free to adapt		
			the lesson to their own		
			circumstances		
Lesson assessments –	Subject Portfolio				
evaluation of learning: of,	Group album on d	-	f di ' ' ' ' '		
for and as learning within the lesson (link to Learning			s of diseases in specific crops	ctudent participation and	
Outcomes)	critical thinking).	nety of mistruction	onal strategies that encourages	student participation and	
		to all learners. es	pecially girls and students with .	Special Educational Needs	
	ensuring their pro		F = 1. 2 y g o a o coo de inco With		
	J 1 7 7 7 9	-			

Teaching Learning	Camera for taking pictures
Resources	Albums
Required Text (core)	Upham, A. A. (2018). An introduction to agriculture. New Delhi: F b &c Limited
Aller In Print	
Additional Reading List	
CPD Needs	1. Report writing
3. 2	Group formation and group dynamics

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Title of Lesson		Health, safety and environmental issues in Agriculture (Crop Pest)  Lesson Duration  180 minutes						utes
Previous student teacher knowledge, prior learning (assumed) Possible barriers to learning in the lesson	This lesson is designed for the student teacher to concentrate on his/her specialization Agriculture. Student teachers will be introduced to pests of crop plants and their continuous measures. This lesson shall be delivered by using face to face interaction between tutor and student teachers, practical activity and e-learning. Student teachers shall assessed on portfolio and report writing. Issues of diversity, inclusivity and gen should be addressed in the classroom.  Student Teachers are: Familiar with human infested with insect pests  • Gender and inclusivity issues on how to operate some safety devices such as known sack sprayer						their control between the chers shall be and gender	
Lesson Delivery – chosen to support students in achieving the outcomes	Face -to- face V	Practical Activity	Work- Based Leaning	Seminars	Independent Study		rning ortunities	Practicum
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<ul> <li>Use interactive lecture to make brief presentation on the topic</li> <li>Use group to get student teachers to visit college farms to take pictures of crop</li> </ul>						·	
<ul> <li>Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</li> <li>Write in full aspects of the NTS addressed</li> </ul>		ne purpose c nd their cont			student teach	ers to kn	ow pests o	of crop plants
Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for each	end	ng Outcome of the le nt teacher w	sson, the		ndicators	issues - skills, e	- core and equity and ty. How w	oss cutting transferable addressing ill these be
learning outcome	ar	emonstrate I nd understar op pest infe	nding of	Explain and	eting specific s. d write a control of pests in	<ul> <li>con book in a general section of the control of the contr</li></ul>	th males all aspects clusivity the nder group adership sl oup work	kills through kills through

Topic Title	Sub-topics (if any):	Stage/Time	Teaching and Learning Activity to achieve learning outcomes depending on the delivery mode selected.  Teacher led, collaborative group work or independent				
			Teacher Activity	Student Activity			
Environmental Effects of Agriculture and Entrepreneurship		1 10 minutes	Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the lesson from pre-tertiary and observation from the environment by asking students to list some pest of human they know. Tutor likens crop pest to human pest.	Introduction of Lesson Students answer questions and do brief discussions. Lice, tsetse fly, etc.			
		2 60 minutes	Discussion Tutor uses interactive lecture to explain pest of crops and their control measures	Discussion Student teachers listen, contribute to the discussion and write down important points			
		3 60 minutes	Farm Visit Tutor guides student teachers to form mixed groups and facilitate to visit crop farms to take pictures and create album on pests of crops. Tutor should ensure that female and SEN Student Teachers participate fully.	Creation of Album Student teachers visit to crop farms in groups on the subject matter, and take pictures from different crop farms and create an album.			
		4 50 minutes	Report Writing Tutor guides student teachers and facilitate to write a report on control measures of pests in specific crops	Report Writing They write report on control measures of pests in specific crops			
			NB: Tutors are free to adapt the lesson to their own circumstances				
Lesson assessments –	Subject Portfol						
evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)	<ul> <li>Group album on pests of crops</li> <li>Report writing on control measures of pests in specific crops</li> <li>NTS 3e (Employs a variety of instructional strategies that encourages student participation and critical thinking).</li> <li>NTS 3f Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress.</li> </ul>						
Teaching Learning Resources	• Came	ra for taking picture					
Required Text (core)	Album     Upham, A.		duction to agriculture. New Delh	i:F b &c Limited			
Additional Reading List	Brothe	ers	ntroduction to Agriculture. (6 <sup>t</sup>	<sup>h</sup> ed). New Delhi: Jain			
CPD Needs	Report writing     Group formations	ng ation and group dyr	namics				

 Year of B.Ed.
 2
 Semester
 1
 Place of lesson in semester
 1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson		Health, safety and environmental issues in Agriculture  (Nursery consists in and form busines)  (Nursery consists in and form busines)							
Previous student teacher knowledge, prior learning (assumed) Possible barriers to learning in the lesson	Student teachers will be introduced to nursery sanitation and farm hygiene. This lesson shall be delivered by using face to face interaction between the tutor and student teachers, practical activity and e-learning. Student teachers shall be assessed on pre-video recording and report writing. Issues of diversity, inclusivity and gender should be addressed in the classroom.  Student Teachers are: Familiar with school farms and nursery  • Gender and inclusivity issues on use of agricultural input and farm implement in agriculture							This lesson nd student n pre-video should be	
Lesson Delivery – chosen to support students in achieving the outcomes  Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<ul> <li>Use g recor sanita</li> </ul>	face							<b>m</b> e-video
Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.     Write in full aspects of the NTS addressed     Learning Outcome for the lesson, picked and developed from the course	The pand for	ourpose of tarm hygiene	this lesson is to	o ena		dent teac	hers to	know nursery	ross core and
developed from the course specification Learning indicators for each learning outcome	Demo		owledge and f nursery		Ex     ww orr     sa     ar     hy     in     fa	oplain and rite a repo n nursery initation nd farm /giene. ake a pre deo on ho maintain gricultural put and rm nplement	tr ar Hi ac ort	ansferable ski nd addressing ow will these I ddressed. Gender conscious in	through evolvement males and all aspects er skills up work es kills

Topic Title	Sub- topics (if any):	Stage/Time	Teaching and Learning Act outcomes depending on the Teacher led, collaborative grou	e delivery mode selected.	
			Teacher Activity	Student Activity	
		1	Introduction of Lesson	Introduction of Lesson	
Environmental Effects of Agriculture and Entrepreneurship		10 minutes	Tutor facilitates student teachers revision of their knowledge of the lesson by	Students answer questions and do brief discussions	
			asking student teachers list the things they do in their backyard (homes) to keep		
			good sanitation and hygiene.		
		2 60 minutes	Discussion Tutor uses interactive lecture to explain nursery sanitation and farm hygiene.	Discussion Student teachers listen, contribute to the discussion and write down important points	
		3	Farm Visit	Video Decouding	
		60 minutes	Tutor guides student teachers to form mixed groups and facilitate visit to different nurseries and farms to make a	Video Recording Student teachers visit nursery and crop farms in groups on the subject matter, and make a pre-	
			pre-video recording on how agricultural input and farm implement are used and	video recording on the use of agricultural input and farm implement and	
			maintained and general sanitation in the farms. Tutor should ensure that female and SEN Student Teachers participate fully.	nursery sanitation and farm hygiene.	
		4 50 minutes	Report Writing Tutor guides student teachers and facilitate to write a report on nursery sanitation and farm hygiene	Report Writing They write report on nursery sanitation and farm hygiene	
			NB: Tutors are free to adapt the lesson to their own circumstances		
Lesson assessments – evaluation	Subject Po	rtfolio			
of learning: of, for and as learning within the lesson (link to Learning Outcomes)	impler	ment	ing on negative effect on the use of the use	of agricultural input and farm	
	<ul> <li>Report writing on nursery sanitation and farm hygiene</li> <li>NTS 3e (Employs a variety of instructional strategies that encourages student particip and critical thinking).</li> <li>NTS 3f Pays attention to all learners, especially girls and students with Special Educat Needs, ensuring their progress.</li> </ul>				
Teaching Learning Resources	Video cam	era for recording			
Required Text (core)		_	introduction to agriculture. New [	Delhi:F b &c Limited	
Additional Reading List	•		n Introduction to Agriculture. (6 <sup>th</sup>		
CPD Needs	1. Report v	vriting ormation and group			

Title of Lesson		fety and enviro e (Effects of en			Lesson Duration	180 mi	nutes	
	_				Duration			
Previous student teacher knowledge, prior learning (assumed) Possible barriers to learning in the lesson	crop/ornamental plants production).  The course will introduce student teachers to effects of environmental variables on crop/ornamental plants production.  This lesson shall be delivered by using face to face interaction between the tutor and student teachers, practical activity and e-learning. Student teachers shall be assessed on creating of catalogue and report writing. Issues of diversity, inclusivity and gender should be addressed in the classroom.  Student Teachers are:  Familiar with negative activities that affect the crop farm environment  • Gender and inclusivity issues on the effects of environmental variables on crops or ornamental plants production.							
Lesson Delivery – chosen to support students in achieving	Face-to-	Practical Activity	Work- Based	Seminars 🗸	Independent Study	e-learning opportunities	Practic um	
the outcomes	\ <b>√</b>	√ ✓	Leaning			√ v		
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<ul> <li>Use grovariable production</li> <li>Use e-le</li> </ul>	up discussion tes on crops or co and each grou earning opport	to get stude ornamental p will make unities to p	ent teachers to plants e power point repare power	presentation to	ects of environme the class pictures		
<ul> <li>Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.</li> <li>Write in full aspects of the NTS addressed</li> </ul>		on crop/orname		le student tea	achers to know o	effects of environ	mental	
Learning Outcome for	_	utcomes: By th		ng Indicators	-	hich cross cutting		
the lesson, picked and developed from the course specification	student tea to:	ne lesson, the cher will be ab	le		and addre		ow will	
Learning indicators for each learning outcome	underst effects environ	dge and anding of	report enviro variab es crop/o plants Take p mining	n and write a on effects of nmental les on ornamental production. ictures from g sites and ded agricultures	femal lessor Inclus gende Leade work Team	ement of both ness in all aspect	s of the ed h group	

			lands in the community and the environment and create a catalogue work • Collab group	orative skills through work
Topic Title	Sub-topics (if any):	Stage/Time	Teaching and Learning Activ outcomes depending on the	delivery mode selected.
			Teacher led, collaborative group Teacher Activity	Student Activity
Environmental Effects of Agriculture and Entrepreneurship		1 10 minutes	Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the lesson by asking students to list some negative activities in the	Introduction of Lesson Students answer questions and do brief discussions
			environment that affect crop production.	
		2 60 minutes	Discussion Tutor uses interactive lecture to explain effects of environmental variables on crop/ornamental plants production.	Discussion Student teachers listen, contribute to the discussion and write down important points
		3 60 minutes	Field Visit  Tutor guides student teachers to form mixed groups and facilitate visit to communities at mining sites and degraded agricultural land to create a catalogue. Tutor should ensure that female and SEN Student Teachers participate fully.	Field Visit and Photography Student teachers visit to communities at mining sites and degraded agricultural land in groups, and take pictures from different mining sites and degraded agricultural land.
		4 50 minutes	Power Point Preparation Tutor facilitates power point presentation and discussion by the groups on subject matter.  NB: Tutors are free to adapt the lesson to their own circumstances	Power Point Presentation Student teachers prepare power point, share the respective group work with the rest of the class and engage in discussions on the subject matter.
Lesson assessments – evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)	ornament NTS 3e (Emplo and critico NTS 3f Pays a Needs, en	sentation by poval plants product over a variety of all thinking). It tention to all keeps uring their prog	ver point on effects of environmentation instructional strategies that encoun earners, especially girls and student	ages student participation
Teaching Learning Resources		or taking pictures		
Required Text (core)			preparation and presentation troduction to agriculture. New Delhi:	F b &c Limited

Additional Reading List	Vyas, A. K. (2014). An Introduction to Agriculture. (6 <sup>th</sup> ed). New Delhi: Jain Brothers
CPD Needs	1. Report writing
	2. Photography
	3. Power point preparation and presentation

Title of Lesson	Health	safety and	environme	ental issues in	<b>,</b>	Lesson		1:	80 minutes							
Title of Lesson		ture (Anima			•	Duratio	n l		bo illillates							
Lesson description		•		duce student	teach			oms c	liagnosis							
Lesson description		nt and conti			teach	ers to cau	ses, sympt	01113, 0	ilagilosis,							
					ing fac	o to faco i	intoraction	hotw	oon the tutor							
		seases. his lesson shall be delivered by using face to face interaction between the tutor d student teachers, practical activity and e-learning. Student teachers shall be assessed														
			-	-		_										
		n creating of album and report writing. Issues of diversity, inclusivity and gender should														
		e addressed in the classroom.														
Previous student teacher		Teachers ar														
knowledge, prior learning	Familiar	with diseas	ed animals													
(assumed)																
Possible barriers to learning	Gender a	and inclusivi	ty issues o	n how to use	safet	, devices t	to control a	nimal	and fish							
in the lesson	diseases															
Lesson Delivery – chosen to	Face-	Practical	Work-	Seminars	Indep	endent	e-learnin	g	Practicum							
support students in achieving	to-	Activity	Based	✓	Study	1	opportur	nities								
the outcomes	face	$\checkmark$	Leaning				٧									
	V															
Lesson Delivery – main mode	• Use	interactive	lecture to	make brief pr	resent	ation on th	he topic									
of delivery chosen to support				teachers to vi			•	icture	s on fish and							
student teachers in achieving		nal diseases					o to tollo p									
the learning outcomes.				ties to make	nower	and take	nictures									
the rearming outcomes.	.036	e-icai iiiig	оррогии	ties to make	power	and take	pictures									
a Durmage for the lesson	Thonu	rnoso of thi	s losson is	to onable stu	dont t	nachare to	know tho	621160	s symptoms							
<ul> <li>Purpose for the lesson,</li> </ul>	1	-		to enable stu				cause	s, symptoms,							
what you want the	ulagnos	sis, treatme	nt and con	itrol of anima	i anu i	isii uiseasi	es.									
students to achieve,																
serves as basis for the																
learning outcomes. An																
expanded version of the																
description.																
<ul> <li>Write in full aspects of</li> </ul>																
the NTS addressed																
<ul> <li>Learning Outcome for</li> </ul>	Learning	Outcomes	: By the	Learning	Ide	ntify which	ch cross cu	tting is	ssues – core							
the lesson, picked and	end of	the less	on, the	Indicators	and	d transfer	able skills,	equity	/ and							
developed from the	student	teacher wil	l be able		ado	dressing d	iversity. H	ow wi	ll these be							
course specification	to:				ade	dressed.										
Learning indicators for	• Dem	onstrate kr	owledge	Explain	•	Gender	through co	onscio	us involvement							
each learning outcome		understand	_	and write			_		es in all aspects							
-		nal and fish	_	a report		of the le			•							
				on causes,	, •		ty through	mixed	gender							
				symptoms		grouping	-		G =							
							-	rough	group work							
				diagnosis			-	_	, Leadership skills through group work							
	1	diagnosis,  • Team work skills through group work														
		treatment • Collaborative skills through group work														
					•	Collabor	ative skills	_	group work							
				and		Collabor	ative skills	_	group work							
				and control of		Collabor	ative skills	_	group work							
				and control of animal		Collabor	ative skills	_	group work							
				and control of animal and fish		Collabor	ative skills	_	group work							
				and control of animal		Collabor	ative skills	_	group work							
				and control of animal and fish		Collabor	ative skills	_	group work							
				and control of animal and fish		Collabor	ative skills	_	group work							

Topic Title	Sub-topics (if Stage/Time any):  Teaching and Learning Activity to achieve learning on the delivery mode selection of the delivery mode selection.  Teacher led, collaborative group work or independent				
			Teacher Activity	Student Activity	
Environmental Effects of Agriculture and Entrepreneurship		1 10 minutes	Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the lesson by asking student teachers to list some disease of domestic animals they know.	Introduction of Lesson Students answer questions and do brief discussions	
		2 50 minutes	Discussion Tutor uses interactive lecture to explain causes, symptoms, diagnosis, treatment and control of animal and fish diseases	Discussion Student teachers listen, contribute to the discussion and write down important points	
		3 60 minutes	Farm Visit Tutor guides student teachers to form mixed groups and facilitate visit to animal farms and fish ponds to take pictures on animal and fish diseases to create an album. Tutor should ensure that female and SEN Student Teachers participate fully.	Album Creation Student teachers visit to animal farms and fish pond in groups on the subject matter, and take pictures on animal and fish diseases from different animal farms and fish ponds and create an album.	
		4 60 minutes	Discussion Tutor guides student teachers to form mixed groups and facilitate power point presentation and discussion on causes symptoms, diagnosis, treatment and control of animal and fish diseases. Tutor should ensure that female and SEN Student Teachers participate fully.  NB: Tutors are free to adapt the lesson to their own circumstances	Power Point Presentation Student teachers prepare power point presentation, share the respective group work with the rest of the class and engage in discussions in groups on the subject matter.	
	611 15 16 11				
Lesson assessments – evaluation of learning: of, for	Subject Portfoli		acoc afforting enocific enimals	and fish	
and as learning within the	_	-	ases affecting specific animals structional strategies that enc		
lesson (link to Learning	and critical		sa actional strutegies that the	oa. ages stadent participation	
Outcomes)	NTS 3f Pays att		rners, especially girls and stua ess.	lents with Special Educational	
Teaching Learning Resources	• Camer	a for taking pictu	ires		
		computer/PCs, l camera for recor			
Required Text (core)	• Upham, A.	A. (2018). <i>An int</i>	roduction to agriculture. New I	Delhi:F b &c Limited	

Additional Reading List	<ul> <li>Vyas, A. K. (2014). An Introduction to Agriculture. (6<sup>th</sup> ed). New Delhi: Jain Brothers</li> </ul>
CPD Needs	1. Power point preparation and presentation

Title of Lesson		safety and e	nvironme	ntal issues in	Agriculture (P	est of	Lesson Duration	180 minutes
Lesson description	The student teacher will be introduced to pest (ecto- and endo-parasites) of animals and fish, their control methods and treatment. This lesson shall be delivered by using face to face interaction between the tutor and student teachers, practical activity and elearning. Student teachers shall be assessed on report writing, video and creation of album. Issues of diversity, inclusivity and gender should be addressed in the classroom.							of animals and using face to and e-eation of
Previous student teacher knowledge, prior learning (assumed)  Possible barriers to learning in the lesson	Student Teachers are: Familiar with some ecto- and endo-parasites of pets and farm animals.  Gender and inclusivity issues on handling of pesticides to control pests in farm animals and fish.							
Lesson Delivery – chosen to support students in achieving the outcomes	Face- to- face	Practical Activity	Work- Based Leaning	Seminars	Independen t Study		rning ortunities	Practicum
Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes.      Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.      Write in full aspects of the NTS addressed	fari Use ecc pre Use har cor The p	m animals/fi e group disco pnomic impo esentation to e group to g nds-on pract atrol pest in e e-learning	sh ussion to g rtance in f the class et student icals throu farm anim opportunit is lesson is	et student te arm animals, teachers to gh demonstr als and fish ties to make to enable st	achers to disconfish and each visit college are ation on hand power point a udent teacher	uss the e group w nimal/fis Iling and	effects of p vill make p h farms to l use of pe	pests and its ower point o carry out sticides to
Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for each learning outcome	• Der kno und efforther imp	g Outcome d of the le dent teache to: monstrate owledge of the endo- and endo- mals and fish monstrate owledge and derstanding ects of pest a cir economic cortance in f mals and fish	cr will  Cr ype type tto-pa m ar h Di pe im of ar and Marm ha h pe	eate an albupes of ecto a crasites in farming land fises scuss the effects and its economical fish ake a visualling and esticides in timals/fish	m of ond endorm h.  ects of conomic farm  deo on use of	Gende involve and for the less gende Leade group Team group	I transferal addression hese be acted through the males in ssoon in the males	ng diversity. ddressed. gh conscious both males all aspects of gh mixed g through

Topic Title  Environmental Effects of Agriculture and Entrepreneurship	Demonstrin handlin of pesticic control period animals are omains, are studies  Sub-topics (if any):	g and use des to est in farm nd fish	Teaching and Learning Actioutcomes depending on the Teacher led, collaborative ground Teacher Activity  Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the lesson by asking student teachers to list some pest of domestic	delivery mode selected.
		2 50 minutes	animals in their homes.  Video Show and Discussion Tutor uses pre-video recording and interactive lecture to present types of pests in farm animals and fish.	Discussion Student teachers listen, contribute to the discussion and write down important points
		3 60 minutes	Discussion Tutor guides student teachers to form mixed groups and facilitate a power point presentation and discussion on effects of pest in farm animals and fish and their economic importance. Tutor should ensure that female and SEN Student Teachers participate fully.	Power Point Presentation Student teachers prepare power point presentation, share the respective group work with the rest of the class and engage in discussions in groups on the subject matter.
		4 60 minutes	Demonstration Tutor guides student teachers to form groups and facilitate visit to animal farms and fish ponds to demonstrate handling and use of pesticides to control farm animals and fish pests. Tutor should ensure that female and SEN Student Teachers participate fully.  NB: Tutors are free to adapt the lesson to their own	Video Recording Student teachers in groups visit the animal farms and fish ponds on the subject matter, and practice handling and use of pesticides in farm animals and fish and make a video
Lesson assessments – evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)	their ec Video re NTS 3e (Em participa NTS 3f Pays Educatio	presentation by onomic import ecording on had apploys a variestion and criticals attention to nal Needs, ensu	ndling and use of pesticides in far ety of instructional strategies	m animals and fish that encourages student

Teaching Learning Resources	Camera for taking pictures
	laptop computer/PCs, LCD Projector
	Video camera for recording
Required Text (core)	Upham, A. A. (2018). An introduction to agriculture. New Delhi:F b &c Limited
Additional Reading List	Koney, E. B. M. (2004). Livestock production and health. Accra: Advent Press.
	Koney, E. B. M. (2004). Poultry production and health. Accra: Advent Press
	Bluwey, F. A., Taiwo, I. O., Okonji, V. A., Kumah, L. A., Ipinmoroti, M. O.,
	Boateng, M. A., & Idoko, F. A. (2018). Introduction to Fisheries of West Africa
	(Volume 1). Benin City: Root and Associates Printing and Publishing House
CPD Needs	1. Video shooting
	2. Power point preparation and presentation

Title of Lesson	Health,	safety and env	ironmental	issues in Agr	riculture	Lesson	180
	(Disinfe	ction and hygie	ne of farm	and fish stru	ictures)	Duration	minutes
Lesson description	This lesson is designed for the student teacher to be introduced to disinfection and hygiene of animal farm and fish structures. It is part of bio-security measures in animal fish farming. This lesson shall be delivered by using face to face interaction between the tutor and student teachers, practical activity and e-learning. Student teachers shall be assessed on report writing. Issues of diversity, inclusivity and gender should be address in the classroom.						
Previous student teacher	Student T	eachers are:					
knowledge, prior learning (assumed)	Familiar v	Familiar with disinfection and hygiene in our homes					
Possible barriers to learning in the lesson	Som	e student teac	hers may b	e allergic to (	chemical usage		
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to- face V	Practical Activity	Work- Based Leaning	Seminars	Independent Study	e-learning opportunities √	Practicum
Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.      Write in full aspects of the	and r  Use 6	maintain hygier e-learning oppo	ne in anima prtunities to son is to er	I farms and f o write a rep	ish structures. ort on subject n	safety devices to natter ow disinfection a	
NTS addressed	Learning	Outcomes B	. +100 000	Lagraina	Idoutifu		ing issues
<ul> <li>Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for each</li> </ul>	of the teacher w	Outcomes: By lesson, the vill be able to:	student	Learning Indicators	core and add these bo	which cross cutt d transferable sk ressing diversity e addressed.	ills, equity . How will
learning outcome	unde	onstrate knowl rstanding of di nygiene of farm tures	sinfection	Explain a write a re on disinfecti and hygie of farm a fish structure	eport mix Incl on gro ene Lea wor Tea s wor Coll	m work skills thr	nixed gender ough group ough group

Topic Title	Sub-topics (if any):	Stage/Time	Teaching and Learning Activity to achieve learning outcomes depending on the delivery mode selected. Teacher led, collaborative group work or independent			
			Teacher Activity	Student Activity		
Environmental Effects of Agriculture and Entrepreneurship		1 10 minutes	Introduction of lesson Tutor facilitates student teachers revision of their knowledge of the lesson by asking student teachers how they ensure that their homes are not infected with micro-organisms, e.g. bacteria.	Introduction of lesson Students answer questions and do brief discussions		
		2 50 minutes	Discussion Tutor uses interactive lecture to explain disinfection and hygiene of animal farm and fish structures	Discussion Student teachers listen, contribute to the discussion and write down important points		
		3 60 minutes	Demonstration Tutor guides student teachers to form groups and facilitate visit to animal farms and fish structures to demonstrate how to use safety devices to disinfect and maintain hygiene of animal farms and fish structures. Tutor should ensure that female and SEN Student Teachers participate fully.	Practicing of handling of safety devices Student teachers in groups visit the animal farms and fish structures on the subject matter, and practice how to use safety devices to disinfect and maintain hygiene.		
		4 60 minutes	Discussion Tutor guides student teachers to write a report on disinfection and hygiene of animal farm and fish structures  NB: Tutors are free to adapt the lesson to their own circumstances	Group Report Writing They write report on disinfection and hygiene of animal farm and fish structures		
Lesson assessments – evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)	'S 3e (Employs a v and critical thin 'S 3f Pays attentic Needs, ensuring	ng on disinfection variety of instruction whing). In to all learners of their progress.	on and hygiene of animal farm a tional strategies that encourage , especially girls and students will learning environment).	s student participation		

Teaching Learning Resources	Drugs, disinfectants, vaccines etc
Required Text (core)	Upham, A. A. (2018). An introduction to agriculture. New Delhi:F b &c Limited
Additional Reading List	<ul> <li>Koney, E. B. M. (2004). Livestock production and health. Accra: Advent Press.</li> <li>Koney, E. B. M. (2004). Poultry production and health. Accra: Advent Press.</li> </ul>
CPD Needs	Explain and write a report on effects of environmental variables on animal and fish performance.     Take pictures from water bodies and degraded agricultural lands in the community and the environment and create a catalogue

Title of Lesson	Health, safety and enviror environmental variables		_	iculture: Effects		esson uration	180 minutes	
Lesson description	This lesson is designed for			to be introduce				
Lesson description	variables on animal and fi							
	interaction between the t	-				-		
	teachers shall be assessed				•		•	
			_	<del>-</del>	itilig. Issu	es oi uiv	ersity,	
Duncture student tracker		clusivity and gender should be addressed in the classroom.						
Previous student teacher	Student Teachers are:	tudent reachers are.						
knowledge, prior learning								
(assumed)	_	Familiar with negative activities or factors in the environment that affect the animals and						
D 11.1	man							
Possible barriers to learning in	Difficulty of getting ga	adgets to	do practica	l demonstration	on the to	pic		
the lesson								
Lesson Delivery – chosen to	Face-to- Practical \	Nork-	Seminars	Independen	e-learni	ng	Practicum	
support students in achieving		Based	✓	t Study	opportu	_		
the outcomes		eaning	·	totady	V	lineics		
Lesson Delivery – main mode	Use interactive lecture		o briof pros	ontation on the	_			
of delivery chosen to support			=		=	d araata a	, catalogue	
student teachers in achieving	Use <b>group</b> to take pic		_				catalogue	
_	<ul> <li>Use e-learning oppor</li> </ul>	tunities	to take pictu	res and make p	ower poir	it		
the learning outcomes.								
<ul> <li>Purpose for the lesson,</li> </ul>	<ul> <li>The purpose of this le</li> </ul>	esson is to	o enable stu	dent teachers to	o know ef	fects of		
what you want the	environmental variab	les on ar	nimal and fis	h performance				
students to achieve,								
serves as basis for the								
learning outcomes. An								
expanded version of the								
description.								
Write in full aspects of the								
NTS addressed								
Learning Outcome for the	Learning Outcomes: E	By Lear	ning Indicat	ors Ider	ntify which	n cross ci	utting issues	
lesson, picked and	the end of the lesson, th	_			re and tra		_	
developed from the	student teacher will b						diversity.	
course specification	able to:	~		-	will thes	_	=	
Learning indicators for	Demonstrate knowledge	Evnl	ain and writ		Gender	through		
each learning outcome	and understanding of	-	ort on effects			_	th males and	
each learning outcome	environmental variables of	1 -	ronmental v					
	animal and fish		nimal and fi			ııı alı as	pects of the	
					lesson			
	performance.	perf	ormance.	•	Inclusivity	_	n mixed	
					gender gr			
			e pictures fro	_		ip skills th	nrough group	
			er bodies an		work			
		degr	de grade de grain ultural					
		_	_		Tealli WO	ווע פווועכ עו	hrough group	
		_	s in the com		work	IK SKIIIS U	hrough group	
		land	_	munity	work			
		land and	s in the com	munity ment		tive skills		

Topic Title	Sub-topics (if any):	Stage/Time	e/Time Teaching and Learning Activity to achieve lead outcomes depending on the delivery mode selection teacher led, collaborative group work or independent				
			Teacher Activity	Student Activity			
Environmental Effects of Agriculture and Entrepreneurship		1 10 minutes	Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the lesson by asking student teachers to list some of the negative activities or factors in the environment that affect the animals and man	Introduction of Lesson Students answer questions and do brief discussions .  pesticide usage, high temperatures, etc.			
		2 60 minutes	Discussion Tutor uses interactive lecture to explain effects of environmental variables on animal and fish performance	Discussion Student teachers listen, contribute to the discussion and write down important points			
		3 60 minutes	Community Visit Tutor guides student teachers to form mixed groups and facilitate visit to communities to take pictures from water bodies and degraded agricultural land to create a catalogue. Tutor should ensure that female and SEN Student Teachers participate fully.	Creation of Catalogue Student teachers visit to communities to take pictures from water bodies and degraded agricultural land in groups on the subject matter.			
		4 50 minutes	Discussion Tutor facilitates power point presentation and discussion by the groups. Tutor should ensure that female and SEN Student Teachers participate fully.  NB: Tutors are free to adapt	Power Point Presentation Student teachers prepare power point, share the respective group work with the rest of the class through power point presentation and engage in discussions in groups on the subject matter.			
			the lesson to their own circumstances	on the subject matter.			
Lesson assessments – evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)	<ul> <li>Subject Portfolio</li> <li>Group presentation by power point on effects of environmental variables on animal and fish performance.</li> <li>Create group catalogue on degraded water bodies and agricultural land</li> <li>S 3e (Employs a variety of instructional strategies that encourages student participation ar critical thinking).</li> <li>S 3f Pays attention to all learners, especially girls and students with Special Educational Need ensuring their progress.</li> <li>S 3c (Creates a safe, encouraging learning environment).</li> </ul>						
Teaching Learning Resources	• lapto • Video	era for taking pictur p computer/PCs, LG o camera for record	CD Projector Iing				
Required Text (core)			oduction to agriculture. New Delhi:				
Additional Reading List		y, E. B. M. (2004). L nt Press.	ivestock production and health. Ac	ccra:			

	<ul> <li>MOFA (2004). Fisheries in Ghana - A handbook on the fisheries sector in Ghana. Accra: Ministry of Food and Agriculture</li> <li>Stickney, R. R. (2005). Aquaculture -Introductory text. London: Cabi Publishing.</li> </ul>
CPD Needs	Team work (PDP, Theme 4); ICT skills (PDP, Theme 5); Assessing professional teaching portfolio (PDP, Theme 7)

 Year of B.Ed.
 2
 Semester
 1
 Place of lesson in semester
 1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson		Concepts	in Agribu	siness and Ent	repreneurship	Lesson	180 minutes	
Lesson description	This lesson is designed for the student teacher to concentrate on his/her specialization in Agriculture, interacting with relevant introduction to agribusiness and entrepreneurship principles. This lesson shall be delivered by using face to face interaction between the tutor and student teachers, group work and power point presentations. Student teachers shall be assessed on power point presentation and report writing. Issues of diversity, inclusivity and gender should be addressed in the classroom.							
Previous student teacher knowledge, prior learning (assumed)	Student Teachers are:  • Familiar with agriculture business from pre-tertiary institutions							
Possible barriers to learning in the lesson		The second secon						
Lesson Delivery – chosen to support students in achieving the outcomes	Face- to-face	Practical Activity	Work- Based Leaning	Seminars	Independent Study	e-learning opportunities √	Practicum	
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.  • Purpose for the lesson, what you want the students to achieve,	<ul> <li>Use interactive lecture to make brief presentation on the topic</li> <li>Use group discussion to get student teachers to discuss the meaning of ag and entrepreneurship and each group will make power point presentation class</li> <li>Use e-learning opportunities to make power point on subject matter</li> <li>The purpose of this lesson is to enable student teachers to know the</li> </ul>							
serves as basis for the learning outcomes. An expanded version of the description.  • Write in full aspects of the NTS addressed								
Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for each	the end the stud be able t		son, Inc	irning licators	and transfera addressing di addressed.	ch cross cutting able skills, equi iversity. How w	ty and vill these be	
learning outcome	und entr skills agric grac	nonstrate erstanding epreneurial s relevant cultural duates to go employmen	of con Ag for en p	plain the ncept of ribusiness and crepreneurshi	females i Inclusivit grouping Leadersh Team wo	through nent of both in all aspects of ty through mixe nip skills through ork skills through ative skills through	d gender n group work h group work	

Topic Title Environmental Effects of Agriculture and Entrepreneurship	Sub-topics (if any):	any):  outcomes depending on the delivery mode select Teacher led, collaborative group work independent				
			Teacher Activity	Student Activity		
		1 10 minutes	Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the lesson by asking the following questions:	Introduction of Lesson Students answer questions and do brief discussions.		
			Who is a business man?  2. What is involved in	A business man is a person who buys and sells goods and services.		
			running a business?	Buying, transporting, marketing, etc.		
		2 60 minutes	Discussion Tutor uses interactive lecture to explain the concept of agribusiness and entrepreneurship.	Discussion Student teachers listen, contribute to the discussion and write down important points		
		3 50 minutes	Group Formation Tutor guides student teachers to form mixed groups and facilitate a discussion on the concept of agribusiness and entrepreneurship	Power Point Development Student teachers engage in discussions in groups on the subject matter, and prepare power point presentation.		
		4 60 minutes	Group Power Point Presentation Tutor facilitates power point presentation by the groups. Tutor should ensure that female and SEN Student Teachers participate fully.	Group Power Point Presentation They share the respective group work with the rest of the class through power point presentation.		
			NB: Tutors are free to adapt the lesson to their own circumstances			
Lesson assessments – evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)	Subject Portfolio  • Group presentation by power point on concept of agribusiness and entrepreneurship  NTS 3e (Employs a variety of instructional strategies that encourages studer participation and critical thinking).  NTS 3f Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress.  NTS 3c (Creates a safe, encouraging learning environment).					
Teaching Learning Resources		computer/PCs				
Required Text (core)	• Upham, A.	A. (2018). An ir	ntroduction to agriculture. Ne	w Delhi:F b &c Limited		
Additional Reading List	Vyas, Brothe		n Introduction to Agricultur	e. (6 <sup>th</sup> ed). New Delhi: Jain		
CPD Needs	Group forma     Power point	ition	d presentation			

Title of Lesson	Busines	ss plan for ar	n agricult	ural enterprise		Lesson	180
							minutess
Lesson description  Previous student teacher	This lesson is designed for the student teacher to be introduced to the concepts of developing a business plan for an agriculture enterprise. This lesson shall be delivered by using face to face interaction between the tutor and student teachers, group work and power point presentations. Student teachers shall be assessed on power point presentation. Issues of diversity, inclusivity and gender should be addressed in the classroom.  Student Teachers are:						e delivered by work and nt
knowledge, prior learning	• Far	• Familiar with some farmers operating small scale agricultural businesses					
(assumed)	_						
Possible barriers to learning in the lesson	• Ge	Gender and inclusivity issues in group formation and presentation					
Lesson Delivery – chosen to support students in achieving the outcomes	Face- to- face V	Practical Activity	Work- Based Leaning	Seminars  ✓	Independent Study	e-learning opportunities $\sqrt{}$	Practicum
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.  • Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.  • Write in full aspects of the NTS addressed	<ul><li>Use agr</li><li>Use</li><li>The</li></ul>	e <b>group disc</b> ricultural ent e <b>e-learning</b>	ussion to terprise opportu	get student tea and each group nities to make p on is to enable	will make power ower point on t	ne topic the business plan point presentat the subject matte s to develop a bi	ion to the class r
<ul> <li>Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for each</li> </ul>	the en	ng Outcome d of the le dent teache e to:	sson,	earning ndicators	and transfer	ch cross cutting able skills, equit liversity. How w	y and
learning outcome	und ent skil agr gra	monstrate derstanding trepreneuria Ils relevant ricultural aduates to go f-employme	of o	explain the concept Agribusiness, entrepreneurshi and business blan for agricultural enterprise.	of both aspects  Inclusivi groupin  Leaders  Team w	of the lesson ty through mixe	females in all d gender n group work n group work

Topic Title Environmental Effects of Agriculture and Entrepreneurship	Sub-topics (if any):	Stage/Time Teaching and Learning Activity to achieve lea outcomes depending on the delivery mode sele Teacher led, collaborative group work or independent.				
			Teacher Activity	Student Activity		
		1 10 minutes	Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the previous lesson by asking questions.	Introduction of Lesson Students answer questions and do brief discussions.		
		2 60 minutes	Discussion Tutor uses interactive lecture to explain the concept Agribusiness, entrepreneurship and business plan for agricultural enterprise.	Discussion Student teachers listen, contribute to the discussion and write down important points		
		3 50 minutes	Group Formation Tutor guides student teachers to form mixed groups and facilitate the development of business plan for agricultural enterprise. Tutor should ensure that female and SEN Student Teachers participate fully.	Group Work Student teachers develop business plan for agricultural enterprise.		
		4 60 minutes	Power Point Preparation Tutor facilitates power point development and discussion by the groups. Tutor should ensure that female and SEN Student Teachers participate fully.	Power Point Presentation Student teachers prepare power point presentation, share the respective group work with the rest of the class through power point presentation and engage in discussions in groups on the subject matter.		
			NB: Tutors are free to adapt the lesson to their own circumstances			
Lesson assessments – evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)						
Teaching Learning Resources	·	op computer/PCs,	•			
Required Text (core)	-		troduction to agriculture. New D			
Additional Reading List			oduction to Agriculture. (6 <sup>th</sup> ed).	New Delhi: Jain Brothers		
CPD Needs		mation nt preparation and lan preparation	d presentation			

 Year of B.Ed.
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 Place of lesson in semester
 1 2 3 4 5 6 7 8 9 10 11 12

Title of Lesson	Agriculture Value	: Chain		Lesson Duration	180 minutes		
Previous student teacher knowledge, prior learning (assumed) Possible barriers to learning in the lesson	This lesson is designed for the student teacher to concentrate on his/her specialization in Agriculture, interacting with relevant introduction to agribusiness principles, especially, to concepts in agriculture value chain and business plan development This course shall be delivered by using face to face interaction between the tutor and student teachers, group work and power point presentations. Student teachers shall be assessed on power point presentation and report writing. Issues of diversity, inclusivity and gender should be addressed in the classroom.  Student Teachers are:  Familiar with the meaning of the concept agribusiness and entrepreneurship  Gender and inclusivity issues in group formation and presentation						
Lesson Delivery – chosen to support students in achieving the outcomes	Face-to- face Activity Bas V Lea		Independen Study	t e-learning opportunitie s	Practicum		
Lesson Delivery – main mode of delivery chosen to support student teachers in achieving the learning outcomes.	<ul> <li>Use interactive lecture to make brief presentation on the topic</li> <li>Use group discussion to get student teachers to discuss and develop value chains for agricultural commodities in crops and animals and each group will make power point presentation to the class</li> <li>Use e-learning opportunities to prepare power point on the subject matter</li> </ul>						
<ul> <li>Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes.         An expanded version of the description.     </li> <li>Write in full aspects of the NTS addressed</li> </ul>	The purpose of this lesson is to enable student teachers to know and develop value chains for different agricultural commodities in crops and animals.						
Learning Outcome for the lesson, picked and developed from the course specification	Learning Outcomes: By the end of the lesson, the student teacher will be able to:	Learning Indicators	and transf	hich cross cutting i erable skills, equit g diversity. How wi	y and		
Learning indicators for each learning outcome	demonstrate     understanding of     entrepreneurial skills     relevant for     agricultural graduates     to go into self-     employment	Discuss and develop value chains for different agricultural commodities in crops, fish and animals.	Gender involved femal Incluse group Leade Team	er through consciou ement of both ma es in all aspects of t ivity through mixed	les and the lesson I gender group work group work		

Topic Title	Sub-topics	Stage/Time	Teaching and Learning Activity to achieve learning		
Environmental Effects of	(if any):		outcomes depending on the delivery mode selected.		
Agriculture and Entrepreneurship			Teacher led, collaborative gro	Student Activity	
			-	·	
		1	Introduction of Lesson	Introduction of Lesson	
		10 minutes	Tutor facilitates student	Students answer questions	
			teachers revision of their knowledge of the lesson by	and do brief discussions.	
			asking the following	Stage 1 – farming	
			question:	State 2 – processing Stage 3 – Marketing	
			What are the various stages	Stage 4 - Consumption	
			involve in crop/animal		
			production from production		
			to consumption?		
		2	<u>Discussion</u>	<u>Discussion</u>	
		60 minutes	Tutor uses interactive	Student teachers listen,	
			lecture to explain value chains for agricultural	contribute to the discussion and write down	
			commodities in crops and	important points	
			animals.		
		3	Group Formation	Group Work	
		50 minutes	Tutor guides student	Student teachers develop	
			teachers to form mixed	value chains for different	
			groups and facilitate to	agricultural commodities	
			develop value chains for different agricultural	in crops and animals.	
			commodities in crops and		
			animals. Tutor should		
			ensure that female and SEN		
			Student Teachers		
			participate fully.	Daniel Branchtine	
		4 60 minutes	Power Point Development Tutor facilitates power	Power Point Presentation Student teachers prepare	
		oo minates	point development and	power point presentation,	
			discussion by the groups.	share the respective group	
			Tutor should ensure that	work with the rest of the	
			female and SEN Student	class through power point	
			Teachers participate fully.	presentation and engage in discussions in groups on	
			NB: Tutors are free to adapt	the subject matter.	
			the lesson to their own		
Lesson assessments – evaluation	Subject Portfo	l olio	circumstances		
of learning: of, for and as					
learning within the lesson (link	Group pre	esentation by po	wer point on value chains for di	fferent agricultural	
to Learning Outcomes)		in crops and ani			
			ty of instructional strategies	that encourages student	
		ation and critical s attention to	all learners, especially girls	and students with Special	
			ring their progress.		
			raging learning environment).		
Teaching Learning Resources	laptop c	omputer/PCs, LC	CD Projector		
Required Text (core)	Upham, A. A. (2018). An introduction to agriculture. New Delhi:F b &c Limited				
Additional Reading List	,		roduction to Agriculture. (6 <sup>th</sup> ed	). New Delhi: Jain Brothers	
CPD Needs	1. Group form		d procentation		
	2. Power poin 3. Agriculture	t preparation and value chain	u presentation		
	J. Agriculture	value Cliaili			

Title of Lesson					Lesson	180	
Previous student teacher knowledge, prior learning (assumed)  Possible barriers to learning in the lesson							
Lesson Delivery – chosen to support students in achieving the outcomes		Practical Activity	Work- Based Leaning	Seminar s	Independent Study	e-learning opportunities $\nu$	Practicum
Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes.      Purpose for the lesson, what you want the students to achieve, serves as basis for the learning outcomes. An expanded version of the description.      Write in full aspects of the NTS	<ul> <li>Use interactive lecture to make brief presentation on the topic.</li> <li>Use groups to collect data from different actors in the agricultural value chain (producer, input dealer/suppliers, agro processors, financial institutions, consumers, etc.)</li> <li>Use group discussion to get student teachers to develop and discuss agricultural value chains based on the data collected from different actors and each group will make power point presentation to the class.</li> <li>Use e-learning opportunities to prepare power point on the subject matter</li> <li>The purpose of this lesson is to enable student teachers to collect data from different actors and develop agricultural value chains.</li> </ul>						
Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for each learning outcome	end of student to:  • dem unde entr relev grad	the less teacher wi nonstrate erstanding epreneurial vant for ag luates to go oloyment	of skills gricultural	Discuss and develop value chains for different actors in agriculture	and transfera addressing di addressed.  • Gender involvem females i e Inclusiviti grouping e Leadersh e Team wo	h cross cutting in the skills, equitiversity. How wind through the skill aspects of the skills through the s	conscious males and the lesson gender group work group work

Topic Title Environmental Effects of Agriculture and Entrepreneurship	Sub-topics (if any):  Teaching and Learning Activity to achieve learning outcomes depending on the delivery mode selected. Teacher led, collaborative group work or independent  Teacher Activity  Student Activity				
		1 10 minutes	Introduction of Lesson Tutor facilitates student teachers revision of their knowledge of the previous lesson by asking question.	Introduction of Lesson Students answer questions and do brief discussions	
		2 60 minutes	Discussion Tutor uses interactive lecture to explain value chains for different actors in agriculture.	Discussion Student teachers listen, contribute to the discussion and write down important points	
		3 50 minutes	Group Formation Tutor guides student teachers to form mixed groups and facilitate collection data from different actors in agriculture and develop value chains for each. Tutor should ensure that female and SEN Student Teachers participate fully.	Data Collection Student teachers develop value chains for each actor in agriculture based on the data collected.	
		4 60 minutes	Power Point Preparation Tutor facilitates power point development and discussion by the groups. Tutor should ensure that female and SEN Student Teachers participate fully.	Power Point Presentation Student teachers prepare power point presentation, share the respective group work with the rest of the class through power point presentation and engage in discussions in groups on the subject matter.	
			NB: Tutors are free to adapt the lesson to their own circumstances		
Lesson assessments – evaluation of learning: of, for and as learning within the lesson (link to Learning Outcomes)	<ul> <li>Subject Portfolio</li> <li>Group presentation by power point on value chains from different actors in agriculture.</li> <li>NTS 3e (Employs a variety of instructional strategies that encourages student participation and critical thinking).</li> <li>NTS 3f Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress.</li> <li>NTS 3c (Creates a safe, encouraging learning environment).</li> </ul>				
Teaching Learning Resources	laptop computer/PCs, LCD Projector				
Required Text (core)	Upham, A. A. (2018). An introduction to agriculture. New Delhi:F b &c Limited				
Additional Reading List	• Vyas, A. K	. (2014). An Intro	oduction to Agriculture. (6 <sup>th</sup>	ed). New Delhi: Jain Brothers	
CPD Needs	Group formati     Power point p     Agriculture va	reparation and p	presentation		

Course Assessment	<ul> <li>*Component 1: Subject Portfolio Assessment (30% overall score)</li> <li>Selected items of student work (3 of them -10% each)</li> <li>Midterm Assessment-20%</li> <li>Reflective journal – 40%</li> <li>Organization of subject portfolio (how it is presented and organized) -10%</li> </ul>		
	<ul> <li>Component 2: Subject Project</li> <li>Introduction- a clear statement of the purpose and specific objectives of the project</li> <li>Methodology-20%</li> <li>Substantive or main section -40%</li> <li>Conclusion – 40%</li> </ul> Component 3: End of Semester Examination -40%		

 $<sup>^{\</sup>rm 1}$  See rubrics on subject portfolio assessment in annex 6 of NTEAP  $^{\rm 2}$  See rubrics on subject project assessment in annex 6 of NTEAP

