Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa

GRANT AGREEMENT NUMBER 101082963

Deliverable 2.1

Holistic agriculture (HA) and FVC master curricula training and evaluation report

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Title of the deliverable	‘’Holistic agriculture (HA) and FVC master curricula’’ training and evaluation report
WP contributing to the deliverable	WP 2 – Curricula Innovation
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Consortium partners	University of Weihenstephan-Triesdorf (HSWT/Germany) Universite de Kara (UK/Togo) Universite de Lome (UL/Togo) South Eastern Kenya University (SEKU/Kenya) Jaramogi Oginga Odinga University of Science and Technology (JOOUST/Kenya) Farming Systems Kenya (FSK/Kenya) Federal University Of Technology, Minna (FUTMINNA/Nigeria) Alex Ekwueme Federal University, Ndufu-Alike (AE-FUNAI/Nigeria) Uniwersytet Przyrodniczy We Wroclawiu (UPWR/Poland) Universitatea Pentru Stiintele Vietii "Ion Ionescu De La Brad" Din Iasi (IULS/Romania)

Target groups (TG) and Final Beneficiaries (FB)	The set objectives aim to respond to the needs of respective HEIs in SSA, their students and employees, farms and farmers, as well as to the needs of all those potential stakeholders who share the same interest in the field of agricultural production or agriculture studies.
Objectives and Outputs	OVERALL OBJECTIVE: To support partner HEIs in Africa in improving the relevance and inclusiveness of higher education SPECIFIC OBJECTIVES: SO1) To develop a master program in Food Value Chain (FVC) at 6 SSA beneficiary HEIs in the period of 18 months (including accreditation process). The innovative program is multidiscipline and prone to innovation considerations around the FVC which is highly relevant to students' uptake, labour market and education skills gap and sustainable employment. SO2) To build capacity of 108 teachers at 6 partner HEIs to use and further promote learning methods and use of teaching methodology prone to entrepreneurial thinking and innovation, with emphasis on e-learning and digital tools over the 9 months period of time.
Background	CHAIN project development was motived by the HSWT long standing cooperation history with the SSA HEIs and industry leaders in agriculture and rural development and extensive knowledge on existing HE practices in teaching and research and gaps needed to be bridged in HE educational relevance, quality and collaboration in agricultural field. The Action scope and design was proposed on the basis of actual identification of needs and issues to be addressed, coupled with the results from recent relevant independent research conducted in the field, e.g. Strengthening Higher Agricultural Education in Africa (World Bank, 2019) with the assistance of regional agro-innovation and education networks including Regional Universities Forum for Capacity Building in Agriculture and African Union Comprehensive African Agricultural Development Programme. While agri-food systems (especially topics around food safety and security) become ever more important topic on global development agendas, and with over 43 % of SSA inhabitants as of 2020 working in the field having limited agricultural education and training, the role of HEIs (offering agricultural study programs with diffuse effect on workforce quality) in

	socio-economic transformation through agri-food system developments becomes of immense and strategic importance, exerting profound effect on the pace of a country's development. Regardless of the detected trend of economic diversification and non-farm employment expansion in SSA, the economies remain strongly dependent on agriculture and allied agri-food systems driving societal innovation, development and growth (Jayne et al., 2018). HEIs capacities lie at the core of a broader (agro) innovation ecosystem that includes extension systems, research and development institutes, agricultural policy research institutes, regional network organizations that support advocacy and sharing of knowledge, civil society organizations, i nnovation hubs, farmers and agribusinesses. Acknowledging all the above mentioned, CHAIN reiterates the importance of the role of agricultural HEIs in the (agro) innovation ecosystem by modernization of master programs, teacher training prone to use of digital and entrepreneurial competences and creation of new value, as well as establishment of a new collaboration mechanism for innovation in the field that gathers all key stakeholders under one roof. Through CHAIN universities gain influence on how the ecosystem operates as well as the performance of other actors. In turn, other actors of the ecosystem affect the performance of universities and their impact on development outcomes. Through this structured interaction, educational quality and relevance increase, and influence greater effectiveness of workers in all of other types of organizations. The quality of university research properly orients the activities of other organizations, while proper coordination with the private sector enables anticipation of skills sets and ensures that the skills sets of university graduates meet demands of the rapidly evolving firms in Africa's agri-food systems diminishing the need for costly on the job training.

Contents

Abstract

This document is a deliverable of Work Package 1 “Preparatory Acitivities” within the EU Erasmus plus Project “CHAIN” financed by the European Commission through the ERASMUS-EDU-2022-CBHE-STRAND-2 call for proposals.
It is a comprehensive document defining target audiences, type of topics and results for sharing and further dissemination as well as types of actions, activities and tools for joint dissemination activities of the CHAIN project. These activities are based on the cooperation of all partners and are strongly linked not only to the CHAIN project objectives but also to the activities of particular work packages.

A corporate identity guide and a basic toolbox of templates for the VISION consortium partners have been provided. The ambition is also to open a discussion on the European AI branding.

This document is sumarizing the ‘’Holistic agriculture (HA) and FVC master curricula’’ training and evaluation report.

1. Introduction

1.1 CHAIN Project

The CHAIN project addresses the topic of capacity building in Higher Education. The focus of project activities and interventions is placed on six higher education institutions in 3 countries of Sub-Saharan Africa,namely Togo, Kenya and Nigeria in colaboration with eurepean partnera from Romania and Poland. The activities and interventions are devised to help the partnership achieve the set project objectives, and they are as follows:

OVERALL PROJECT OBJECTIVE is to support partner higher education institutions in Sub-Saharan Africa in improving the relevance and inclusiveness of higher education.

This is to be obtained by attaining two specific project objectives:

SO1) To develop a master program in Food Value Chain (FVC) at 6 SSA beneficiary HEIs in the period of 18 months (including accreditation process)

SO2) To build capacity of 108 teachers at 6 partner HEIs to use and further promote learning methods and use of teaching methodology prone to entrepreneurial thinking and innovation, with emphasis on e-learning and digital tools

SO3) To establish 6 Collaborative Holistic Agriculture Innovation Nests (CHAINs) at partner HEIs in cooperation with private sector and offer support to innovation initiatives of students, farmers, and entrepreneurs

The project refers to the overarching priority relating to sustainable growth and jobs with the focus on the field of agriculture.

In summing up, this project proposal gathers HEIs from the least developed countries of the SSA, which can be corroborated by the fact that Togo, Kenya and Nigeria have approximately the same extremely low human development index (below 0.55 on a scale from 0 to 1). Last, but not least, the project intends to tackle the presence and participation of persons with fewer opportunities in tertiary education, whereby the lack of opportunities is reflected in various social, economic, and cultural obstacles.

2. Holistic agriculture (HA) and FVC master curricula training 01-05.04.2024 in Triesdorf/Germany

2.1 Agenda

From April1st to April 10th, 2024, representatives from CHAIN Partner Universities, participated in a seminar held at the Weihenstephan-Triesdorf University of Applied Sciences, Germany. This seminar was an important milestone in the CHAIN project, which is part of the Erasmus Plus program funded by the European Union (EU). The CHAIN project aims to modernize agricultural education in Sub-Saharan Africa by fostering innovation and holistic approaches to agricultural training, with a particular focus on food value chains. The seminar was hosted at the Weihenstephan-Triesdorf University of Applied Sciences. The seminar's agenda focused on developing a Master's curriculum in Food Value Chain Management, creating opportunities for cross-university collaboration, and fostering practical skills through engaging visits and discussions.

Timetable (projects of more than 2 years)

Fill in cells in beige to show the duration of activities. Repeat lines/columns as necessary.

***Note:** Use actual, calendar years and quarters. In the timeline you should indicate the timing of each activity per WP.*

ACTIVITY	YEAR 1				YEAR 2				YEAR 3			
	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
T2.1) Introduction training on HA and food value chain (FVC) master curricula												
T2.2) FVC Master program development workshops												
T2.3) Consultative group meetings with farmers, business sector and public administration												
T2.4) Peer -review of draft master program and finalization												
T2.5) Master curricula accreditation												
T2.6) Enrolment of first generation of students in new master program at 6 partner HEIs												

2.2 Timeplan

Seminar on Curricula Development of a Master Program in Food Value Chain Management

Triesdorf 01-06 April 2024

01.04.2024 Monday (Room E.001 – whole day)

9.00 to 12.00 Arrival

12.00 to 13.15 Lunch

13.30 to 16.30 All Partners Presenting Status Quo at there Universities

16.45 to 17.15 Dinner

02.04.2024 Tuesday (Room E.001 – whole day)

7.00 to 8.00 Breakfast

9.00 to 12.00 Discussion about Curricula Development

12.00 to 13.15 Lunch

13.30 to 16.30 Group Work on Specific Core Subjects of the new Master Programm

16.45 to 17.15 Dinner

03.04.2024 Wednesday (Room E.001 – whole day)

7.00 to 8.00 Breakfast

9.00 to 12.00 Presentation of the Group Works from Tuesday

12.00 to 13.15 Lunch

13.30 to 16.30 Merging of all comments with regard to the new subjects to be established

16.45 to 17.15 Dinner

04.04.2024 Thursday (Room E.001 – whole day)

7.00 to 8.00 Breakfast

8.30 to 10.00 Discussion about Trainings planned by Wroclaw University and discussion about Meeting in Wroclaw/Poland in Autumn 2024 (Room E.001)

10.00 to 12.00 Discussion about CHAINS – Center Development at each University (Room E.001)

12.00 to 13.15 Lunch

13.30 to 16.30 Open points for CHAIN Project Development (Room E.001)

16.45 to 17.15 Dinner

05.04.2024 Friday

7.00 to 8.00 Breakfast

8.00 to 8.30 Check out

9.51 to 11.16 Train to Würzburg

11.30 to 13.30 Guided Tour Würzburg

14.00 to 17.00 Visit of Vinery in Würzburg

18.37 Train Departure

06.04.2024 Saturday

Departure from Frankfurt

2.3 Highlights of the Week

The CHAIN project aims to bridge the gap between academic institutions and the agricultural sector by fostering collaboration, knowledge exchange, and practical innovations. This project not only focuses on curriculum development but also emphasizes building capacity among teaching staff, students, and farmers, thereby contributing to sustainable agricultural development in the region.

The CHAIN project embodies a holistic and human-centered approach to agricultural education in Sub-Saharan Africa, enhancing the capacity for innovation and sustainability. By connecting multiple universities and stakeholders across Sub-Saharan Africa and Europe, including partners from Nigeria, Kenya, Togo, Poland, Romania, and Germany, the project aims to create a more resilient agricultural sector capable of addressing current and future challenges.

Stay tuned for more updates as we continue to shape the future of agricultural education together!

- Welcome to Germany: The seminar began with a warm welcome by Dr. Mueller, who ensured everyone felt comfortable and prepared for the activities ahead. We gathered for an informal evening, complete with pizza, where participants got to know each other and shared their goals for the week. This provided a relaxed atmosphere that set the stage for productive collaboration.
- Curriculum Development Sessions: Throughout the week, we worked on developing the proposed Master's program in Food Value Chain Management. These sessions were informative and constructive, with Prof. Dan Bodescu from the University of Life Sciences "Ion Ionescu de la Brad" in Iasi, Romania, guiding us through key methodologies. We engaged in discussions, brainstorming sessions, and refinement of ideas, making significant progress. Representatives from Wroclaw University also shared their insights, helping to shape future training programs and upcoming meetings in Wroclaw.
- Site Visits: To complement our discussions, we conducted several informative site visits. Our first stop was the Dairy Cow Center in Triesdorf, where we observed innovative practices in dairy farming that have positioned this region as a leader in sustainable food production. Next, we visited the Bakery Family Herzog in Muhr am See, where we learned about traditional baking methods and the importance of sustainability in food production.
- Cultural Experience: A special highlight was our day trip to Würzburg, a city rich in history and culture. Guided by Dr. Mueller, we explored notable landmarks, walked through scenic streets, and experienced the local culture. Our final visit was to a winery in Würzburg, where we explored winemaking practices and the intersection of tradition and innovation.
- Looking Ahead

  The outcomes of this seminar have laid a solid foundation for the development of the Master's curriculum, which is expected to enhance agricultural education in Nigeria, Kenya and Togo. Our collaboration will continue in the upcoming CHAIN meeting planned for Autumn 2024 in Wroclaw, Poland. We look forward to continuing this journey towards modernizing agricultural education and driving innovation in Sub-Saharan Africa.

2.4 Photos

[L-R: The AE-FUNAI delegation Mr. Chukwuemeka Emenekwe, Dr. jane Munonye, Dr. Anthony Oko-Isu, Prof. Johnny Ogunji]

2.5 Participant List

CHAIN Project Team					
List of participants – Food Technology Seminar, April 2024					
Nr.	**Gender**	**First Name**	**Last Name**	**University**	**Übernachtung LLA**
1.	Male	Atti	Tchabi	Université de Kara (UK)	01.04.2024-06.04.2024
2.	Male	Nazer	Famah Sourassou	Université de Kara (UK)	01.04.2024-06.04.2024
3.	Male	Tiatou	Souho	Université de Kara (UK)	01.04.2024-06.04.2024
4.	Male	Batcha	Ouadja	Université de Kara (UK)	01.04.2024-06.04.2024
5.	Male	Agnassim	Banito	Université de Lomé (UL)	01.04.2024-06.04.2024
6.	Male	Tchamye Tcha-Esso	Boroze	Université de Lomé (UL)	01.04.2024-06.04.2024
7.	Female	Bayi Reine	Dossou epse Ativon	Université de Lomé (UL)	01.04.2024-06.04.2024
8.	Male	Adjiwanou	Atiglo-Gbenou	Université de Lomé (UL)	01.04.2024-06.04.2024

9.	Male	Julius	Kilungo	South Eastern Kenya University (SEKU)	01.04.2024-06.04.2024
10.	Male	Benjamin	Muli	South Eastern Kenya University (SEKU)	01.04.2024-06.04.2024
11.	Male	Matheaus	Kauti	South Eastern Kenya University (SEKU)	01.04.2024-06.04.2024
12.	Male	Joseph	Nzomoi	South Eastern Kenya University (SEKU)	01.04.2024-06.04.2024
13.	M	Christopher	Obel-Gor	Jaramogi Oginga Odinga University of Science and Technology (JOOUST)	01.04.2024-06.04.2024
14.	F	Mary	Akinyi Orinda	Jaramogi Oginga Odinga University of Science and Technology (JOOUST)	01.04.2024-06.04.2024
15.	M	Dennis	Otieno Ochuodho	Jaramogi Oginga Odinga University of Science and Technology (JOOUST)	01.04.2024-06.04.2024
16.	M	Silvance	Onyango Abeka	Jaramogi Oginga Odinga University of Science and Technology (JOOUST)	01.04.2024-06.04.2024
17.	MALE	KENNETH	WAMUGA	Farming Systems Kenya (FSK)	01.04.2024-06.04.2024
18.	Male	Likita	Tanko	Federal University of Technology, Minna (FUTMINNA)	01.04.2024-06.04.2024
19.	Male	Chiemela Enyinnaya	Chinma	Federal University of Technology, Minna (FUTMINNA)	01.04.2024-06.04.2024
20.	Male	Michael Akindele	Ojo	Federal University of Technology, Minna (FUTMINNA)	01.04.2024-06.04.2024
21.	F	JANE ONUABUCHI	MUNONYE	Alex Ekwueme Federal University Ndufu Alike (AE-FUNAI)	01.04.2024-06.04.2024
22.	M	ANTHONY	OKO-ISU	Alex Ekwueme Federal University Ndufu Alike (AE-FUNAI)	01.04.2024-06.04.2024
23.	M	Chukwuemeka	Chinoso	Alex Ekwueme Federal University Ndufu Alike (AE-FUNAI)	01.04.2024-06.04.2024
24.	M	JOHNNY ONYEMA	OGUNJI	Alex Ekwueme Federal University Ndufu Alike (AE-FUNAI)	01.04.2024-06.04.2024
25.	M	Florin-Daniel	Lipsa	Iasi- IULS	01.04.2024-06.04.2024
26.	Male	Bodescu	Dan	Iasi- IULS	01.04.2024-06.04.2024
27.	Female	Oana	Coca	Iasi- IULS	01.04.2024-06.04.2024
28.	M	Vlad	Arsenoaia	Iasi- IULS	01.04.2024-06.04.2024

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Erasmus + Project "CHAIN"

Confirmation of the participation on the Seminar "Curricula Development of a Master program in Food Value Chain Management ", Triesdorf, 01. April – 05. April 2024

First and last name	Institution	Workshop 02.04.	Workshop 03.04.	Workshop 04.04.	Workshop 05.04.
Nazer Famah Sourassou	Université de Kara				
Mewezenon Adom	Université de Kara				
Tiatou Souho	Université de Kara				
Batcha Ouadja	Université de Kara				
Agnassim Banito	Université de Lomé				
Tchamye Tcha-Esso Boroze	Université de Lomé				
Bayi Reine Dossou epse Ativon	Université de Lomé				
Adjiwanou Atiglo-Gbenou	Université de Lomé				
Julius Kaia Kilungo	University SEKU				
Benjamin Kimwele Muli	University SEKU				
Matheaus Kauti	University SEKU				
Joseph Nzomoi	University SEKU				
Christopher Obel Gor	JOOUST University				
Mary Akinyi Orinda	JOOUST University				
Dennis Otieno Ochuodho	JOOUST University				
Silvance Onyango Abeka	JOOUST University				

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Nazer Famah Sourassou	Université de Kara				
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Tchamye Tcha-Esso Boroze	Université de Lomé				
Bayi Reine Dossou epse Ativon	Université de Lomé				
Adjiwanou Atiglo-Gbenou	Université de Lomé				
Julius Kaia Kilungo	University SEKU				
Benjamin Kimwele Muli	University SEKU				
Matheaus Kauti	University SEKU				
Joseph Nzomoi	University SEKU				
Christopher Obel Gor	JOOUST University				
Mary Akinyi Orinda	JOOUST University				
Dennis Otieno Ochuodho	JOOUST University				
Silvance Onyango Abeka	JOOUST University				

3. Outcome of the Meeting - Development of Core Subjects

3.1 Curriculum Sub Group Report

A group specified the different definitions of Credit Unit between the universities.

Terms of Reference

1. Assigning courses per semester
2. Assigning Credit Hours to courses

Courses	Semester	Credit Hour	Credit Unit
Food value Chain Management	1	90	2
Principles of Agripreneurship and product development	1	90	2
Food processing technology	1	90	2
Crop, livestock and fish value chain management	2	90	2
Digital technology for Agri-food system	2	90	2
Sustainability for Commodity and food value chains	2	90	2

AE-FUNAI : 1credit = 45 hours (15hours (presential/Contact) + 30 hours (for student))

TOGO : 1 credit = 20 hours (12hours (presential Contact) + 8 hours(for student))

JOOST : 1 Unit = (45 hours(presential) + 15 hours (for student)) = 4 credits

3.2 Course - Food Value Chain Management

Course Content

- Concepts, principles and relevance of value chain approach;
- upgrading of existing value chain;
- steps, linkages and issues in value chain analysis;
- steps, challenges, prospects, interventions/initiatives/strategies for value chain development;
- enabling environment for Food value chain development and case studies;
- ethics and value chain governance.

3.3 Agripreneurship and Product Development

Objectives

1. Identify basic qualities of an agripreneur
2. Identify and generate Business ideas/generation (-innovations, emerging enterprises, strategies and approaches of business)
3. Understand the process of setting up an enterprise (legal, resource requirement e,g personnel, finances, physical etc)

4. Explain enterprise management (Resource mobilization,
5. Evaluate organizational behaviour-HRM, change mgt, partner management
6. Analyze Consumer behaviour
7. Understand business law-laws and regulations in agri-enterprise.
8. Develop business plan/business canvas model
9. Carry out business analysis

Course Description

1. Introduction to agripreneurship

- Definition and importance of entrepreneurship
- Types of entrepreneurship (intrepreneurship, entrepreneurship)
- Forms of agr-ienterprises for running agribusiness organizations (small,medium, large)
- Qualities/skills needed for running the business.

2. How to identify and generate business ideas

- Sources of new ideas (research, emerging enterprises,
- Ideation process (brain storming, random association, etc)
- Enterprise selection

3. Process of setting up an enterprise

- Legal requirements
- Financial and economic requirements
- Personnel requirements
- Infrastructural requirements
- Business location

4. Enterprise Management

- Financial Management
- Man-power/Personnel- HRM, change mgt, partner management
- Machinery/Production
- Materials
- Resource mobilization in an enterprise

5. Product development

- Impetus to product innovation
- New product development process

6. Marketing and Consumer behaviour

- Marketing functions
- Marketing institutions
- Market research (Types of market information,
- Marketing mix
- Marketing strategies
- Market segmentation
- Consumer needs
- Types of consumers
- Exogenous and endogenous influences on the buyer behaviour
- Consumer purchasing process

7. Business law

- laws and regulations governing agri-enterprise

8. Business Plan/Business Canvass model (proposal)

3.4 Food Processing Technology

(4 Credit Units – 2 Credit Units Training in the lab)

TOPICS

1. Raw material processing and food preservation

- Introduction to science of raw materials

- Post harvesting physiology

- Processing of plants and animal-based foods

- Food preservation techniques

2. Product development and sensory evaluation

- Introduction to food product development

- Types of new food products

- Stages in new foods product development

- Sensory evaluation of food products

3. Food quality and safety

- Biochemical and nutritional constituents of foods

- Food microbiology

- Food toxicology

- Food additives

- Functional foods

- Food quality management

4. Food packaging

- Introduction

- Types and functions of packaging materials

- Packaging requirements for different foods (environment, spoilage….)

3.5 Crop, Livestock and Fish Value Chain Management – Second Semester

Course Content

- Principles of crops, livestock and fisheries production and their supply chains;
- processing methods of agricultural products;
- post-harvest changes taking place in crop products;
- estimating the post-harvest losses in crop products;
- types of losses in livestock and fisheries products resulting from poor processing and preservations;
- post-harvest and processing facilities for crops, livestock and fisheries products;
- estimating the viability of different agricultural products processing techniques;
- monitoring and evaluation of safety and quality assurance measures in harvesting, transporting, processing, storage, grading, packaging, standardization and marketing of agricultural products locally and abroad;
- agro-logistics requirements of crops, livestock, and fisheries products;
- political, environmental, social, technological, legal, and economic (PESTLE) analysis for crop, livestock and fisheries value chain management.

3.6 Digital Technologies for Agri-Food Systems

COURSE OBJECTIVE:

To equip students with cutting-edge knowledge and practical skills in applying digital technologies in the agri-food sector, fostering innovation, sustainability, and efficiency in agricultural practices and food systems across Africa. Graduates will be prepared to drive digital transformation in agriculture, enhance food security, and contribute to economic development while addressing the challenges posed by climate change.

SPECIFIC OBJECTIVES:

- Understand the role and impact of digital technologies within the agri-food value chain.
- Application of data science, remote sensing, and GIS technologies for improving precision agriculture.
- Acquire the skills to design, deploy, and manage IoT and sensor networks for monitoring soil, climate, and crop conditions, facilitating data-driven decision-making in farming.
- Explore the principles of precision agriculture and smart farming technologies, emphasizing digital tools through relevant case studies.
- Understand the application and potential of robotics and automation in agriculture, including drones and autonomous vehicles.
- Learn the fundamentals of blockchain technology and its applications in enhancing food safety and traceability within the agri-food chain.
- Develop strategies for leveraging digital platforms to enhance agricultural extension services and improve digital literacy among farmers.
- Analyze the role of digital marketplaces and financial services in agriculture.
- Understand the agri-tech ecosystem, including the development and scaling of innovative solutions, and the policy and regulatory environment supporting agri-tech entrepreneurship.

COURSE CONTENTS AND MODULES:

Module 1: Introduction to Digital Technologies in Agri-food Value Chain Systems

- Overview of digital technologies in agriculture
- Digital transformation in agri-food systems: global vs country context
- Challenges and opportunities in African agriculture

Module 2: Data Science and Analytics for Agri-food Value Chain Systems

- Principles of data science in agri-food value chain systems
- Remote sensing and GIS for precision agriculture
- Big data analytics and its application in crop forecasting and pest management

Module 3: IoT and Sensor Technologies in Agri-food Value Chain Systems

- Introduction to IoT and sensors in farming
- Design and deployment of sensor networks for soil, climate, and crop monitoring
- Data management and analysis for informed decision-making

Module 4: Smart Farming and Precision Agriculture

- Principles of precision agriculture
- Digital tools and technologies for site-specific crop management

- Case studies: Success stories of precision farming in country

Module 5: Agricultural Robotics and Automation

- Overview of robotics in agriculture
- Drones in crop monitoring and spraying
- Autonomous tractors and robotic harvesters: Prospects for country

Module 6: Blockchain for Traceability in the Agri-Food Chain

- Introduction to blockchain technology
- Applications of blockchain for food safety and traceability
- Case studies on blockchain adoption in country agri-food systems

Module 7: Digital Extension Services and Farmer Digital Literacy

- Digital platforms for agricultural extension services
- Strategies for enhancing digital literacy among farmers
- Role of mobile technologies in reaching remote farmers

Module 8: Digital Platforms for Market Access and Agri-Finance

- Digital marketplaces for enhancing access to markets for smallholder farmers
- Digital financial services (DFS) in agriculture: Opportunities and challenges
- The role of mobile technology in providing agricultural advisory services

Module 9: Innovation and Entrepreneurship in Agri-Tech

- Ecosystem for agri-tech startups in country
- Funding and scaling agri-tech solutions
- Policy and regulatory environment for agri-tech innovation

FINAL PROJECT:

A capstone project where students will develop a prototype or detailed plan for a digital technology solution addressing a specific challenge in the country agri-food sector. This will involve problem identification, technology selection, system design, and an implementation plan, culminating in a presentation to an expert panel.

COURSE DELIVERY:

This program combines lectures, hands-on workshops, case studies, field visits, and guest lectures from industry experts. Emphasis will be placed on collaborative learning, with students encouraged to work in teams for projects and assignments. The use of online learning platforms will also be integrated to provide access to resources and facilitate discussions beyond the classroom.

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"Digital Transformation in Agriculture" edited by Luiz Moutinho, Paulo Cortez, & Begoña Pino

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"Big Data Analytics in Genomics" edited by Ka-Chun Wong, David Zhang, & Tao Jiang

"Internet of Things in Agriculture" edited by Jyotir Moy Chatterjee & Debanjan Das

"Wireless Sensor Networks for Agriculture" by Umesh Kumar Singh & Dharma P. Agrawal

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"Blockchain for Business Applications" by Vincenzo Morabito

"Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies is Changing the World" by Don Tapscott & Alex Tapscott

"Digital Technologies for Agricultural and Rural Development in the Global South" edited by Torbjörn Fredriksson

"Agricultural Extension Reforms in South Asia: Status, Challenges, and Policy Options" edited by David J. Spielman & Rajju R. Vyas

"Digital Finance: The New Frontier" edited by Douglas W. Arner, Janos Barberis, & Ross P. Buckley

"Digital Marketing in the Food Sector" by Monika Koller

"Innovative Business Models for Smallholder Farmers: A Case Study of Agricultural Entrepreneurs in Africa" by Catherine Mungai

"Startup Opportunities: Know When to Quit Your Day Job" by Sean Wise and Brad Feld

3.7 Sustainability of commodity and food value chains

Content:

1. Introduction to Sustainability and Food Systems

- Definition of sustainability

- Overview of the food value chain

- Importance of sustainable food production

2. Sustainable energy and Food value chain

- Energy consumption in agriculture

- Greenhouse gas emissions from food systems

- Production (solar, wind, and biomass energy in agriculture)

- Energy-efficiency (production, processing and transportation)

3. Sustainable Practices in food value chain

- Agroecology

- Organic farming techniques

-Water usage and pollution in food production

- Precision agriculture

- Smart farming technologies

- Cold chain management and food preservation

- Sustainable packaging and distribution systems

4. Food Waste Reduction and Resource Management

- Causes and consequences of food waste

- Strategies for reducing food loss and waste

- Resource recovery and circular economy approaches

5. Ethical and Social Considerations in Food Production

- Fair trade and ethical sourcing

- Labor rights and social justice in agriculture

- Environmental Standards

- Cost-benefit analysis of sustainable practices

- Market incentives for sustainability

6. Case Studies and Best Practices

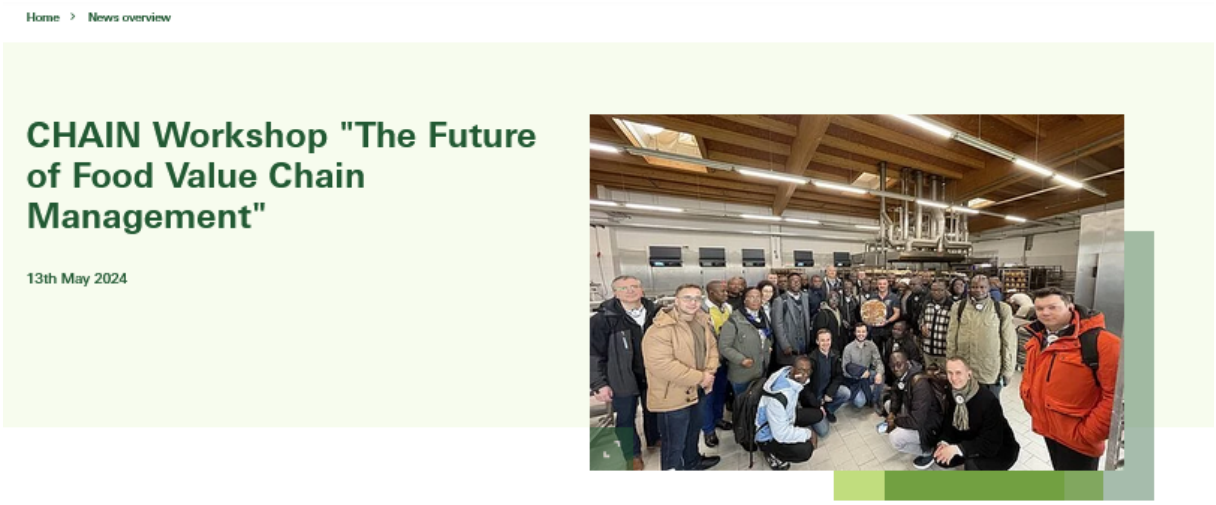
7. Project Work and Présentations

Number of units adopted:

30 teaching hours

60 hours practical and homeworks

4. Media Post



Home > News overview

CHAIN Workshop "The Future of Food Value Chain Management"

13th May 2024

A landmark seminar in the framework of the CHAIN Project, focusing on the "Curricula Development of a Master Program in Food Value Chain Management," welcomed 32 distinguished participants from 10 partner institutions, including seven from Kenya, Nigeria and Togo and two from Poland and Romania at the HSWT.

Hosted by HSWT Project Manager Bernd Müller, Assistant Anis Dzankovic and Aizhan Nasyrbekova, the seminar was focusing on the "Curricula Development of a Master Program in Food Value Chain Management". The CHAIN Project, funded by the EU Erasmus+ Programme, is designed with the visionary objectives of establishing a Master Program in Food Value Chain Management and Collaborative Holistic Agriculture Innovation Nests (CHAINs) at six partner Higher Education Institutions.

These innovations aim to support the creativity and entrepreneurial ventures of students, farmers, and entrepreneurs, thereby enhancing their employability and entrepreneurial spirit. Participants attented various discussions and workshops. In a practical part the group visited the Bakery of Family Herzog in Muhr Am See to gain insights of the grain value chain and the Hofkeller in Würzburg where wine production and ripening were discussed.

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https://www.hswt.de/en/newsroom/news-overview/detail/chain-workshop-the-future-of-food-value-chain-management

Unveiling the Future of Food Value Chain Management: A Glimpse into Our Latest Seminar

We are proud to announce the successful completion of a landmark seminar in the framework of the CHAIN Project, funded by the EU Erasmus+ Programme, at Weihenstephan-Triesdorf University of Applied Sciences (HSWT). This seminar, focusing on the "Curricula Development of a Master Program in Food Value Chain Management," marks a significant stride towards educational excellence and innovation in Africa.

The CHAIN Project is designed with the visionary objectives of establishing a Master Program in Food Value Chain Management and Collaborative Holistic Agriculture Innovation Nests (CHAINs) at six partner Higher Education Institutions. These innovations aim to support the creativity and entrepreneurial ventures of students, farmers, and entrepreneurs, thereby enhancing their employability and entrepreneurial spirit. Moreover, the project seeks to develop competency-based master programs on Food Value Chain management, enriching the academic landscape with cutting-edge curricula

designed to meet the current and future needs of the agricultural sector. To complement these efforts, the project also focuses on building the capacity of teachers in rural and remote areas, promoting innovative learning methods and digital tools to foster an environment of entrepreneurial thinking and innovation.

Hosted by HSWT Project Manager Bernd Müller, Assistant Anis Dzankovic and Aizhan Nasyrbekova, the seminar welcomed 32 distinguished participants from 10 partner institutions, including seven from Kenya, Nigeria and Togo, two from Europe (Wroclaw; Poland and Iashi Romania), and our university as the coordinating institution. The seminar served as a dynamic platform for sharing insights, best practices, and innovative approaches to curriculum development in the realm of Food Value Chain Management.

The seminar's objectives were multifaceted, aiming to not only design a cutting-edge curriculum for Master's programs in Food Value Chain Management but also to facilitate a platform for sharing insights and best practices among experts from various backgrounds. The collaborative spirit of the CHAIN Project was evident as participants engaged in enriching discussions and workshops, laying the groundwork for innovative agricultural education and practice. Beside Workshop Sessions the Team analyzed the grain value chain at the Bakery of Family Herzog in Muhr Am See (Photo with CEO of the Bakery Alexander Herzog) as well as the grape value chain visiting the Hofkeller in Würzburg were wine production and ripening were discussed.

The seminar was a testament to our collective effort to reshape the landscape of agricultural education and innovation. We extend our heartfelt gratitude to all the participants, faculty members, and our partner institutions for their invaluable contributions to the success of this seminar. Together, we are paving the way for a sustainable, innovative, and inclusive future in food value chain management.

4. Evaluation

Male	**Female**	**Non-binary**	**I do not want to specify**	**Other**
20	6	0	0	0
0,769230769	0,230769231	0	0	0

The event content was useful and relevant

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
17	9	0	0	0
0,653846154	0,346153846	0	0	0

Program of events align with CHAIN project deliverables. Curriculum for the Master Degree in Food Value Chain was developed especially the common courses to be included by each HEI were identified and adopted for inclusion in the curriculum of each partn

Activities were carefully structured around objectives that were achieved and yielded valuable resul

we were able to develope the common courses for the Masters program

we were to development a curriculum for the project and we ddelivered

It was about the development of the curriculum for Masters degree in Food Value Chain Management

Activities like Focus group and the subjects composed fort the Master Food Value Chain were succesfull.

The scope and coverage of the Workshop met my expectations particularly the consensus on the Common Courses for the Curriculum

The event content was well structured for effective curricula development of a Master Program in Food Value Chain Management

Brought together various universities to discuss the course content

Focus was on curricular development was is a major output for the project.

The CHAIN team members were able to meet and get to engage and know each other.

Match with the main objective formulated for the ongoing Project

all the activities organised focused on enhancing the value of the food chain. Working groups were set up to reflect on concrete aspects of the food chain, and the master's curriculums proposed by each university were presented and discussed

It afforded us the opportunity to agree on the courses to be included generally in the curriculum. It also provided avenue to know more of the essence of cHAIN project

We were able to achieve one important thing: The agreement for the curriculum

Sharing of experiences by different universities on Curricula development on Food Value Chain Management and development of common/standard units. Triesdorf Campus tour and visit to Herzog Bakery gave a practical context for "placement" of the course

The facilitators/trainers/lecturers were well prepared and knowledgeable about the topics

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
17	9	0	0	0
0,653846154	0,346153846	0	0	0

The facilitators/trainers/lecturers have the requisite qualification and experience, and well prepared for the topics delivered during the event.

well prepared with enough information to deliver

The facilitators were well prepared and knowledgeable about the topics. In the working groups, they helped each participant to find solutions to the various problems that can be encountered in food chain management.

The Facilitators from the Backgroung Information of the Workshop to the Curriculum Structure, Survey Methodology, Course content, and Planns for the next steps were quite appropriate and insightful

They presented the lectures with clarity and understanding

Selection of the participants was very well done

They shared real experiences and involved the participants in seeking solutions to issues being discussed

the topics were good presented

The draft curriculum presentations by the various universities were well thought out and in line with the proposed masters program. Also, the other speakers / presenters seemed to have prepared well given the technical depth of their presentations

I was a very job for organizing so seminar including severl countries with differents approachs in curricula building

The facilitation was very useful

Power point slides were presented without any ambiguity but with clarity

Facilitators/trainers/lecturers thoroughly prepared each stage of the activities and accurately led to the achievement of the objectives.

They kept the particpants fully engaged and were able to handle questions without difficulties.

They were able to prepare and present on their topics and participants were able to engage with them on matters that needed clarification.

The facilitator/trainer/lecturer(s) approach(es) was(were) appropriate.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
16	10	0	0	0
0,615384615	0,384615385	0	0	0

They met the expectations of the participants.

This was demonstrated by combination of presentation approaches such as role playing, group discussions and excursions

Each of the Facilitators employed an Interactive approach where Group work which were truly interactive followed Background information by the Facilitators

Approaches adopted were coherent

The facilitators/trainers/lecturers handled each stage of the activities with responsibility and professionalism.

The presentation approach enabled the participants to engage the facilitators on matters that needed clarification.

Very good presentation

The approaches enhanced understanding

The seminar was interactive and not one way

Facilitator are wonderfull

The facilitators/trainers were friendly, humble and used appropriate teaching approach to deliver the topics. They gave the participants the opportunity to share their experience or thoughts on the topics discussed

yes, the tried their best

The trainers are graduates in the topics they have facilitated

The presentations were appropriate for the various subtopics that were the subject of discussion.

He was prepared for the workshop

The event duration was appropriate with effective dynamics to produce new/expected learning outcomes and work agreements

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
15	10	0	1	0
0,576923077	0,384615385	0	0,038461538	0

The distribution of topics/issues covered for the week and health breaks in between allowed flexibility and meeting objectives of training

The period of the event was adequate for delivering the learning outcomes. Time allocation and mode of teaching and discussion were appropriate

Events fit into project CHAIN objective and specific deliverables

This was particularly helped by the break-out sessions for the various focus group discussions on the topics assigned

Time was well organized and used efficiently.

the duration was too short and everything was in a hurry

Less time for a big job done

The teams were able to work and complete their tasks.

We could get some days extra to realy finalize and adopte the common courses

There was a good mix between venues and events.

But it will be better to have more Time for this seminar

True: For Example I learned about the Syndicate method of Roles assumption during the Case Study Sessions

The duration was enough to produce the expected outcome (Curriculum)

All the planned activities were carried out within the time allocated

The event space and working conditions were appropriate

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
16	9	1	0	0
0,615384615	0,346153846	0,038461538	0	0

too many room changes

Space is very confortable

Appropriate working space for the event

We used various rooms that were availed by the University, and these were appropriate for the number of participants for each session.

Round tables... were suitable

Necessary facilities/utilities e.g. internet connectivity were available.

The accommodation is close to the seminar site, the internet connection is easily accessible and the restaurant is also accessible and well served

Everyone was active and participatory

Attempt to conduct the training in different venues was appreciated. It allowed experiencing different work spaces and conditions seating on roundtable and lecture formation

Standard event space and working conditions were provided by the organizers. The even space was adequate to accommodate all participants. The halls had good Internet, public address system, projectors, among others.

There was adequate space commensurate with Assigments that were to be tackled during the Workshop

The space and logistics required were more than sufficient and adequate.

Absolutely

I agree to some extent but moving from place to place for venue was not too nice

Spacious with good lighting and internet access.

The time management was good

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
17	7	1	0	0
0,653846154	0,269230769	0,038461538	0	0

What did you like most about the event?

Constructive discussion

"Curricula building including several Universities/Countries with different approach

Sections of activities in Uni. Triesdorf

Excursions"

discussions with colleagues from different countries enrich my knowledge in developing Master curricula

"1. Diversity in unity of participants and trainers in terms of disciplines and geographical backgrounds

2. Issuance of Certificate of participation"

Seminar was really productive and helped us to develope and improve Curricula

The mode of delivery, knowledge of the subject by the facilitators and the participatory approach used.

Due to the divergent proposals from various university , time was a bit more limited

The facilitator is angry when you want him to help you with something.

The consensus building for the common course units to be adopted by all Consortium Partner Universities

curriculum formulation

Possibility of direct meeting face-to-face and strengthening relationships among members of the project consortium, possibility of additional conversations with meeting participants during behind-the-scenes conversations.

Teamwork approach which enhanced engagements and deliberations on the CHAIN activities and of course the tours.

"The availability and dynamism of Dr. Bernd Müller in the discussions on curricula, which enabled us to share our visions and experiences in the training of students, really impressed me.

The harmony in the working groups and the proximity of the accommodation to the workplace

"

The time management!

The visits to the bakery, dairy, biogas plant and the syndicate groups formed to brainstorm, the focus group discussions and more

Friendly atmosphere, commitment of the organizer and all participants at all stages of working meetings and social integration.

Good atmosferę.

Time management at the event was good and accommodated all the planned programme.

The interactive nature of the event - where each university first presented the draft curriculum and thereafter a harmonized version of the curriculum was developed taking into account the inputs from various groups. The lively discussions on the course units and structure of the program was particularly enriching.

Focus group discussion.

We had time to brainstorm together among the partner countries' representatives. We agreed on the curriculum together without a dissenting voice

in depth discussion and consensus agreements

The commitment of Dr Bernd Muller and team to deliver the project. Everything planned for the visit was achieved within the shortest possible time. It was amazing.

Subject discussion and the organisation

Given the interest in the research objectives, I most appreciated the research activities and the interaction between the participants. Very valuable viewpoints and outputs resulted..

What did you like least about the event

The organisation is more than 70% well organized

There was no activity that I liked less

The transportation arrangement of the various participants -- starting from their home country.

Lack of coffee or soft drinks or cakes was very unfortunate. It does not cost much but facilitate work and atmosferę

Time did not allowe us to visit every departement of university of triesdorf.

None that I can remember

No coffee break (with coffee drink) during the seminar

None

I don't have any comments.

None

Few female representation in the international conference.

Everything was ok.

the role play session of the differents state entities

There was nothing in particular which was not appealing.

None

everything was good

The group work were excellent came up will agreeable course content

Dispersing meetings in different buildings and classrooms. It's better for meetings to be in the same place all the time. Apart from that everything was fine.

not applicable

The weather was not good for most of us from Africa! The event itself was ok

very intensive programme

The venues were in different offices. A central venue should have been provided

The event fulfilled my expectations?

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
16	10	0	0	0
0,615384615	0,384615385	0	0	0

Space for open questions, wishes and suggestions:

More time should be devoted to role play

I want to sincerely thank the excellent team of Dr Muller for the good work done. Bravo! I am suggesting that henceforth, everything should be done as a team to enable Dr Muller to handle it. A

case of individual arrival and departure was not nice. Since this project is for Africa, the team has to come from and depart to Africa. That should be a condition. This will be easier for the organizers

I the next formular, despite the participants meeting their meals it would be good to plan for 10 o'clock & 4 o'clock tea to keep the participants warm or even do a pooling of costs for the same

I wishe that the facilitator participate to baisi trainin to see how Dr Kate and Prof Ralf are shaving and help us to understand more

Thank you for an exceptionally good time and fruitful scientific cooperation.

no remark

I will very appreciate it if CHAIN Can touch farm machinery management, to support FVC.

I sincerely appreciate the organizers of the event for such top-notch arrangement. I enjoyed the industrial visit at the bakery. The PI, Dr. Bernd Muller, Annis, Dragan and all the team members from the University of Triesdorf are wonderful people.

"The next event can be held during summer if possible

We can also have a designated conference room rather than the venue having to change sometimes twice or thrice in a day!"

Provide next time coffee break with coffee

A particularly venue should be provided for the program throughout. Yes, I know people will be divided into different sessions but notwithstanding, they should should have a dedicated venue to return back to after the sessions

I wish that the next activities in Poland in September will also be a success.

1. Whenever possible the duration of training can be extended

The Tour on Friday was Fantastic; Educative and Insightful

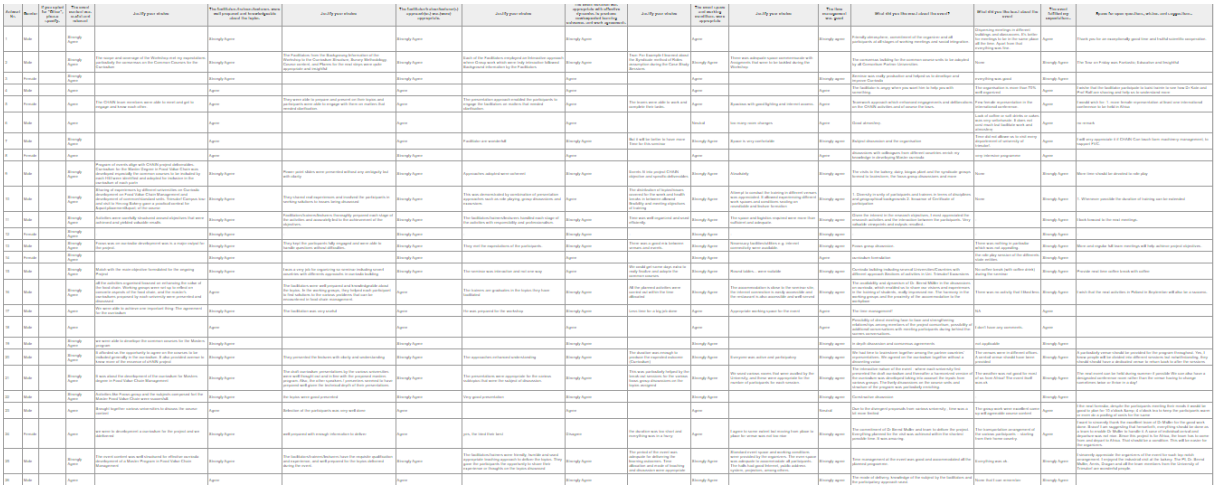
"I would wish for:

1. more female representation

at least one international conference to be held in Africa"

More and regular full team meetings will help achieve project objectives.

I look forward to the next meetings.



5. Annexes

5.1 SEKU Planned Curricula - Kenya

5.2 JOOUST Planned Curricula - Kenya

5.3 AEFUNAI Planned Curricula - Nigeria

5.4 FUTMINNA Planned Curricula - Nigeria

5.5. University Lome und Kara Planned Curricula - Togo

SOUTH EASTERN KENYA UNIVERSITY (SEKU)

MSc. Food Value Chain Draft Curriculum

Presented at a project workshop for project:
Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa (CHAIN)
2nd April 2024

Curriculum Structure

1. Title of the programme:

Master of Science in Food Value Chain

2. Eligibility:

a. A holder of a Bachelor's degree in Agriculture or related Agricultural discipline with at least Second Class Honours (Upper Division)

b. A holder of a Bachelor's degree in Agriculture or related Agricultural discipline with at least Second Class Honours (Lower Division) with additional two (2) years of relevant training, research experience or work experience since graduation with a Bachelor's degree.

Curriculum Structure cont'd

3. Length of the programme:

- Two years
  a. Year 1: 2 semesters @ semester 6 units
  b. Year 2: Thesis

Curriculum Structure cont'd

4. List of Proposed Units

A. Year 1: Semester One

1. AFVC 600 Food Value chain management: Principles and practice
2. AFVC 601 Research methods in Agribusiness and Value chains
3. AFVC 602 Food Technology
4. AFVC 603 Food Economics
5. AFVC 604 Food Quality Management
6. AFVC 605 Gender and Value Chain Management

Curriculum Structure: cont'd

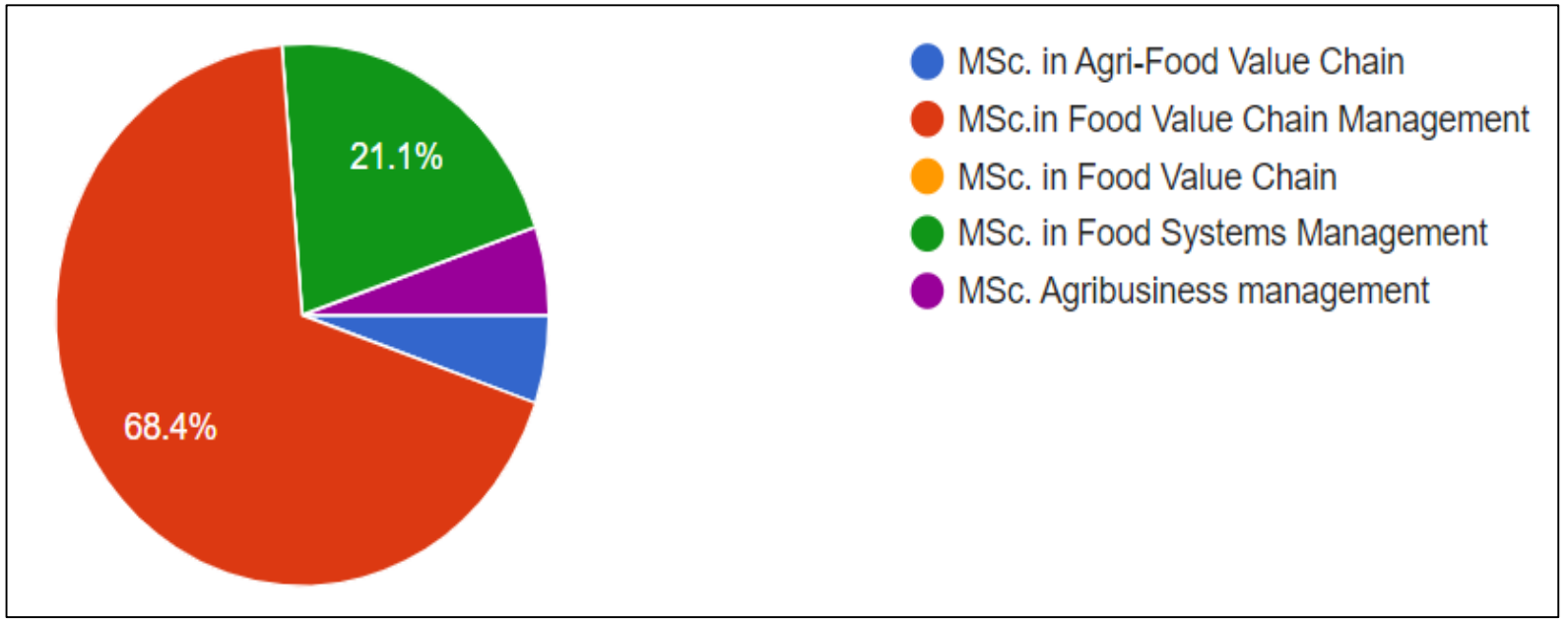
B. Year 1: Semester Two

1. AFVC 606 Food Marketing
2. AFVC 607 Project Planning and Management
3. AFVC 608 Seminar in Agribusiness and Value Chain Management
4. AFVC 609 Investment Analysis and Business Plan Development
5. AFVC 610 Crop value chain management
6. AFVC 611 Livestock value chain management

Progress to date

- Needs assessment survey done and report compilation ongoing

Preliminary finding: Name of the Programme



Progress to date

- ❑Needs assessment survey done

General Comments

1. Need for a course unit in ‘Data analysis and food logistics’
2. The draft assumes that crops and livestock are the only food. It would be good to explore other food sources and include in the value chain such as insects, aquatic food among others.
3. The aspect of commercialization and innovation is not reflected in the units
4. Unit 1 in semester 1 & semester 2 units 1,5 & 6 are likely to have overlapping content.
5. How will the graduate of this programme impact the community? There is need to infuse such content in one of the units since all farmers need this information, but can not enroll for MSc.

NEXT STEP

Next Step

Conduct Focused Group Discussion with stakeholders

South Eastern Kenya University

CHAIN PROJECT DEVELOPMENTS AT SEKU

Presentation During Seminar On Curricula Development For A Masters Program

In Food Value Chain Management 31st March – 6th April 2024 at

Weihenstephan-Triesdorf University of Applied Sciences

South Eastern Kenya University (SEKU)

SEKU is a public university with main campus located in Kwa Vonza, Kitui County, Kenya, about 170 Km South East of Nairobi

General Project Information

1. Name of the Project: **"CHAIN" PROJECT**
2. Project Budget: **EUROS 82,848**
3. Funds Received: **50% (41,399 Euros)**
   - ❖Part of this has been used to facilitate the current meeting.
4. Internal Project Management meetings held: **5 meetings**
5. Procurement Update:
   - ❖List of specifications has been prepared
   - ❖Process initiated with procurement department

The SEKU CHAIN Project Team

S/N	Name	Position	Gender	Specialization	Role in the Project	Email	Phone
1.	Dr. Julius Kilungo	Senior Lecturer	M	Agric. Economics and Agribusiness Management	Project Coordinator	jkilungo@seku.ac.ke	+254713765570
2.	Dr. Benjamin Muli	Senior Lecturer	M	Agricultural Education and Extension/Entomology	Institutional Coordinator	bmuli@seku.ac.ke	+254721714739
3.	Dr. Judy Wambua	Lecturer	F	Agronomy	Member	jwambua@seku.ac.ke	+254726035404
4.	Mr. Bernard Mweu	Technologist	M	Horticulture	Member	bmweu@seku.ac.ke	+254721279411
5.	Dr. Matthews Kauti	Senior Lecture	M	Environmental Geography	Member	mkauti@seku.ac.ke	+254722606398
6.	Dr. Joseph Nzomoi	Senior Lecturer	M	Economics	Member	jnzomoi@seku.ac.ke	+254713746798

MSc Curriculum Development

1. Draft **'MSc. Food Value Chain Management'** Prepared and shared with Project Coordinator

2. Needs assessment as part of internal university processes has been done

3. Report compilation ongoing

Training Needs Assessment

Currently, we have done:

1. Five (5) questionnaires administered to students
2. Two (2) questionnaires administered to teachers
3. Three (3) questionnaires administered to entrepreneurs
4. Other questionnaires for teachers, students and entrepreneurs to be done after this workshop.

Thank you

ERASMUS CHAIN PROJECT PROGRESS REPORT

APRIL 2024

ACHEIVEMENTS SO FAR

- October 2023: An advertisement was put up for the position of Enumerator for the CHAIN Project Masters in Food Value Chain Management (MFVCM) Curriculum Needs Assessment Survey
- November 2023 seventeen (17) Enumerators were recruited, trained, and deployed for Fieldwork in 7 the Lake Victoria Region Economic Block [LVREB] Counties area of study
- The 7 Counties of the Lake Victoria Economic Block included 4 Riparian/Lakeshore and 3 Catchment area Counties

The Study Area Counties Namely:

- Riparian Counties:
  - Busia; Homa Bay;
  - Kisumu; Migori, and Siaya
- Catchment area Counties:
  - ✓ Bungoma; Kericho; and
  - ✓ Kisii

STRUCTURED STUDY INSTRUMENT

- Part I: Bio data/Socio-Economic Profile of Respondents
- Part II: Opinions on Adequacy/Inadequacy of current Agricultural Curriculums in terms of content and relevance
- Part III: Value Chain Segment Constrains Analysis Matrix [Input Supply; Production; Market; and Consumption]
- Part IV: Focus Group Discussion (FGD) by selected relevant Stakeholders

TARGET GROUPS [Main Stakeholders/Actors along the Agricultural Commodity Value Chain]

- Input Supply Segment Actors: [AgroVets, Farm Input Supply Distributors; Local Manufacturers]
- Production Segment Actors: [Individual Progressive Farmers; Farmer Cooperatives/Associations; Youth Groups; and Women Groups]
- Market Segment Actors: [Wholesalers; Retailers; Brokers; Transporters; and Vendors]
- Consumption Segment Actors: [Corporate Clientele; and Individual Households

RESULTS/FINDINGS

Needs Assessment Fieldwork Report:

- **1. Postgraduate Education:**

- Dissatisfaction with Training - Stakeholders expressed dissatisfaction with the quality of training and caliber of graduates in agriculture-related disciplines across various institutions.

2. Curriculum Recommendations:

- Practical Training: Stakeholders recommended an increased emphasis on practical, hands-on training, including extended farm internships to bridge the gap between theoretical knowledge and real-world application.
- Innovation and Technology - Integration of innovative modules, including digital agriculture and precision farming, was suggested. Collaboration with industry professionals for insights and guest lectures was deemed essential

3. Industry Collaboration:

Enhanced Partnerships

- Stronger collaboration between educational institutions and agricultural industries was recommended
- to align curricula with the evolving needs of the Industrial sector.
- Continuous follow-up activities during student attachments were emphasized.

4. Entrepreneurial Skills:

- **Business and Entrepreneurship**
- Participants stressed the importance of incorporating entrepreneurship and business skills into the curriculum.
- Understanding and optimizing value chain opportunities were seen as critical for preparing students for diverse roles in the agricultural sector

NEEDS ASSESSMENT CONCLUSION

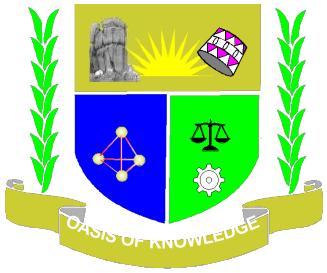
- The findings underscored the need for a holistic approach to curriculum development
- emphasizing practical skills, technological integration, and collaboration between academia and industry.
- Standardization of curricula, entrepreneurship, innovative approaches, and youth engagement initiatives, were considered indispensable for sustainable growth in the agricultural sector.

Requirements for Accreditation

1. Needs Assessment [Completed – February, 2024]
2. Departmental Board Presentation [Completed – March, 2024]
3. School Board Presentation [Scheduled – April, 2024]
4. Stakeholders Forum [Scheduled – April, 2024]
5. Deans' Committee Presentation [Scheduled – April, 2024]

Requirements for Accreditation (Cont..)

6. Curriculum Review Committee Presentation [Scheduled – May, 2024]
7. Senate Presentation [Scheduled – May, 2024]
8. Commission for University Education Presentation [Scheduled - May, 2024]
9. Advertisement for Admission [Scheduled – July, 2024]
10. Inaugural Admission [Scheduled – September, 2024]



JARAMOGI OGINGA ODINGA UNIVERSITY OF

SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

DEPARTMENT OF AGRICULTURAL ECONOMICS AND AGRIBUSINESS MANAGEMENT

REGULATIONS AND SYLLABUS FOR

Masters in Agricultural Commodities Value Chain Management (MACV)

P.O. BOX 210-40601

BONDO, KENYA

Tel:+254-572501804, www.jooust.ac.ke

February, 2024

CONTENTS

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1.0 GENERAL INFORMATION

1.1 Vision, Mission and Core Values of the Institution

(a) Vision

A beacon in training, research, and sustainable development.

(b) Mission

To provide quality education that nurtures creativity and innovation through integrated training, research and community outreach for sustainable development.

(c) Core Values

Customer focus, Impartiality, Professionalism, Integrity and Meritocracy.

1.2 Philosophy of the Institution

A holistic scholarship service to humanity through wisdom, science and technology.

1.3 University Admission Requirements

(a) JOOUST criteria for a Doctoral Degree Programme shall apply:

Candidates wishing to pursue a Doctor of Philosophy (PhD) programme at Jaramogi Oginga Odinga University of Science and Technology must meet the following requirements:

(a) Have appropriate preparatory academic training as evidenced by at least one of the following:

(i) Be a holder of a Master's Degree of Jaramogi Oginga Odinga University of Science and Technology

(ii) Be a holder of a Master's Degree or an equivalent academic qualification from any other Recognized institution.

(b) JOOUST criteria for a Master's Degree Programme shall apply:

Candidates wishing to pursue a master's degree programme must meet the following requirements:

(i) Holders of at least Upper Second Class Honours Bachelor's degree or equivalent Qualification from recognized Universities.

(ii) Holders of a Lower Second Class Honours degree or postgraduate Diploma in from any Recognized universities and evidence of two years' of relevant work experience.

(iii) In addition to the above, applicants must meet the specific requirements of the Masters Programme as provided by the University Senate.

(c) JOOUST criteria for a Bachelor Degree Programme shall apply:

(i) Candidates must satisfy the minimum University requirements of mean grade of C+ in Kenya Certificate of Secondary Education (KACE); OR

(ii) Have two principal passes in biology and chemistry in KACE and at least a credit in Mathematics at Ordinary level; OR

(iii)Holders of a KNEC equivalent diploma from a recognized college; OR

(iv) Holders of a related degree from a recognized university.

1.3.1 Procedure of application for admission to the university

(a) Enquiries for a master's degree programme shall be made to the Registrar (Academic Affairs), Jaramogi Oginga Odinga University of Science and Technology, P. O. Box 210-40601, Bondo, Kenya.

(b) Closing date for receiving applications for the Master's Degree Programme shall be as Determined by the Senate from time to time.

Application forms may be obtained from the JOOUST website: (http://www.jooust.ac.ke/)

1.4 Academic Resources

1.4.1 Facilities and Equipment

The facilities within the campus are shared among the different departments and include:

a) Lecture Rooms:

The University has adequate lecture rooms, lecture theatres and conference halls in the Main Campus and all its Campuses.

b) Library:

The University libraries have various sources of information, research, reading and instructional materials**.**

(i) Main Campus

The main campus library is a three-floors building accommodating 300,000 volumes. The library is equipped with books, journals (both hardcover, paperback, and online), for various programmes offered at the University. In addition, plans are already underway to strengthen the teaching and

learning resources by providing more books, e-books, journals, e-journals, CDs and DVDs, as well as to establish linkages with other institutions for wider access to academic and research resources. Moreover, the university's integrated library service software enhances access to library resources

(ii) Campuses

At each campus, library resources are purchased and stocked with recommendations and support from the Schools that houses the programme at the Main Campus.

c) Information and Communication Technology (ICT)

The University has a well-established ICT Department and support sections that provide IT services to the Main Campus and other Campuses for teaching and learning. The University website (http://www.jooust.ac.ke/) is operational. The local Area Network (LAN) link enables easy sharing of information and data across the University. The University also has provisions for multi-media facilities for teaching and learning.

d) Laboratories

The University has a Science Complex Building at the Main Campus that houses 26 laboratories for pure and applied sciences.

e) Tuition Farms/Fields

The University has a 50 Acre farm that support teaching and research in various fields of agricultural sciences.

1.4.2 Reference Materials

Core-texts in terms of numbers:

The University library is well stocked with at least three core texts per each unit course being offered:

(a) E-books in terms of subscriptions;

(b) Print journals in terms of subscriptions; and

(c) E-journals in terms of subscriptions and accessible databases.

The University has subscribed to different E-resources which can be used to access both text books

and journals. The materials can be accessed through (http://www.lib.jooust.ac.ke/)

1.4.3 Academic Staff

(a) Academic Staff

The school of Agricultural and Food Sciences has established a pool of qualified staff in diverse disciplines both for full and part-time mode of teaching. The School is comprised of academic faculty with expertise in different fields of agricultural sciences and related disciplines (Appendix IV). In addition, the School utilizes relevant expertise from other Schools of JOOUST as well as other regional and international institutions. Where necessary, the permanent academic faculty is supported by qualified part-time staff.

(b) Technical and Support Staff

The School of Agricultural and Food Sciences has access to qualified technical support staff including laboratory technicians, coordinators for research, training, and mentorship.

1.5 Programmes Offered by the Institution

1.5.1 List of Academic Programmes Offered in the Institution

1. Bachelor of Arts in Spatial Planning
2. Bachelor of Business Administration with IT
3. Bachelor of Education (Arts) with IT
4. Bachelor of Education (Early Childhood Development)
5. Bachelor of Education (Science) with IT
6. Bachelor of Education (Special Needs) Education) with IT
7. Bachelor of International Tourism Management
8. Bachelor of Logistics and Supply Chain Management
9. Bachelor of Science (Business Information Systems)
10. Bachelor of Science (Information Communication Technology)
11. Bachelor of Science in Actuarial Science with IT
12. Bachelor of Science in Agribusiness Management
13. Bachelor of Science in Agricultural Education and Extension

14. Bachelor of Science in Animal Science
15. Bachelor of Science in Biological Sciences
16. Bachelor of Science in Community Health and Development
17. Bachelor of Science in Computer Security and Forensics
18. Bachelor of Science in Construction Management
19. Bachelor of Science in Food Security
20. Bachelor of Science in Horticulture
21. Bachelor of Science in Public Health
22. Bachelor of Science in Renewable Energy Technology and Management
23. Bachelor of Science in Soil Science
24. Bachelor of Science in Water Resources and Environment Management
25. Master of Science in Food Security and Sustainable Agriculture
26. Master of Science in Agricultural Extension
27. Master of Science in Agribusiness Management
28. Master of Science in Horticulture
29. Master of Science in Animal Science
30. Master of Science in Soil Science
31. Master of Science in Urban Environmental Planning and Management
32. Master of Science in Pure Mathematics
33. Master of Science in Plant Taxonomy
34. Master of Science in Physics
35. Master of Science in Parasitology
36. Master of Science in Microbiology
37. Master of Science in Information Technology Security and Audit
38. Master of Science in Information Technology Management
39. Master of Science in Information Systems
40. Master of Science in Health Informatics
41. Master of Science in Epidemiology and Biostatistics
42. Master of Science in Ecology
43. Master of Science in Biomedical Sciences in Specialization on Medical Entomology,

Parasitology, Parasitology or Immunology

44. Master of Science in Biology
45. Master of Science in Applied Statistics
46. Master of Science in Applied Mathematics
47. Master of Science in Food Security and Sustainable Agriculture
48. Master of Science Chemistry
49. Master of Public Health in Epidemiology and Disease Control
50. Master of Public Health (MPH)
51. Master of Logistics and Supply Chain Management
52. Master of Education in Planning and Economics of Education
53. Master of Education in Pedagogy
54. Master of Education in Guidance and Counseling
55. Master of Education in Educational Technology
56. Master of Education in Educational Psychology
57. Master of Education in Curriculum Studies
58. Master of Education in Administration and Management
59. Master of Education in Early Childhood Development and Education
60. Master of Business Administration
61. Master of Arts in Religion
62. Master of Arts in Project Planning and Management
63. Master of Arts in Literature
64. Master of Arts in Linguistics
65. Master of Arts in History
66. Master of Arts in Geography
67. PhD in Food Security and Sustainable Agriculture
68. PhD in Agricultural Extension
69. PhD in Agribusiness Management
70. PhD in Horticulture
71. PhD in Animal Science
72. PhD in Soil Science

73. PhD in Special Needs Education
74. PhD in Religion
75. PhD in Pure Mathematics
76. PhD in Public Health
77. PhD in Plant Taxonomy
78. PhD in Plant Ecology
79. PhD in Planning and Economics of Education
80. PhD in Planning
81. PhD in Physics
82. PhD in Pedagogy
83. PhD in Parasitology
84. PhD in Microbiology
85. PhD in Literature
86. PhD in Linguistics
87. PhD in Information Technology Security and Audit
88. PhD in Information Technology and Management
89. PhD in History
90. PhD in Health Informatics
91. PhD in Guidance and Counseling
92. PhD in Geography
93. PhD in Epidemiology and Biostatistics
94. PhD in Educational Psychology
95. PhD in Educational Administration and Management
96. PhD in Early Childhood Development and Education
97. PhD in Curriculum Studies
98. PhD in Chemistry
99. PhD in Business Information Systems
100. PhD in Business Administration
101. PhD in Applied Statistics
102. PhD in Applied Mathematics

103. PhD in Analytical Chemistry

1.5.2 Total Time for Completing a Lecture/Instruction of Each Programme

List of Programmes	Hours
1. Bachelor of Arts in Spatial Planning	2352
2. Bachelor of Business Administration with IT	2352
3. Bachelor of Education (Arts) with IT	2352
4. Bachelor of Education (Early Childhood Development)	2352
5. Bachelor of Education (Science) with IT	2352
6. Bachelor of Education (Special Needs) Education) with IT	2352
7. Bachelor of International Tourism Management	2352
8. Bachelor of Logistics and Supply Chain Management	2352
9. Bachelor of Science (Business Information Systems)	2352
10. Bachelor of Science (Information Communication Technology)	2352
11. Bachelor of Science in Actuarial Science with IT	2352
12. Bachelor of Science in Agribusiness Management	2352
13. Bachelor of Science in Agricultural Education and Extensions	2352
14. Bachelor of Science in Animal Science	2352
15. Bachelor of Science in Biological Sciences	2352
16. Bachelor of Science in Community Health and Development	2352
17. Bachelor of Science in Computer Security and Forensics	2352
18. Bachelor of Science in Construction Management	2352
19. Bachelor of Science in Food Security	2352
20. Bachelor of Science in Horticulture	2352
21. Bachelor of Science in Public Health	2352
22. Bachelor of Science in Renewable Energy Technology and Management	2352
23. Bachelor of Science in Soil Science	2352
24. Bachelor of Science in Water Resources and Environment Management	2352
25. Master of Science in Food Security and Sustainable Agriculture	720

26. Master of Science in Agricultural Extension	720
27. Master of Science in Agribusiness Management	720
28. Master of Science in Horticulture	720
29. Master of Science in Animal Science	720
30. Master of Science in Soil Science	720
31. Master of Science in Urban Environmental Planning and Management	720
32. Master of Science in Pure Mathematics	720
33. Master of Science in Plant Taxonomy	720
34. Master of Science in Physics	720
35. Master of Science in Parasitology	720
36. Master of Science in Microbiology	720
37. Master of Science in Information Technology Security and Audit	720
38. Master of Science in Information Technology Management	720
39. Master of Science in Information Systems	720
40. Master of Science in Health Informatics	720
41. Master of Science in Epidemiology and Biostatistics	720
42. Master of Science in Ecology	720
43. Master of Science in Biomedical Sciences in Specialization on Medical	720
44. Master of Science in Biology	720
45. Master of Science in Applied Statistics	720
46. Master of Science in Applied Mathematics	720
47. Master of Science in Food Security and Sustainable Agriculture	720
48. Master of Science Chemistry	720
49. Master of Public Health in Epidemiology and Disease Control	720
50. Master of Public Health (MPH)	720
51. Master of Logistics and Supply Chain Management	720
52. Master of Education in Planning and Economics of Education	720
53. Master of Education in Pedagogy	720
54. Master of Education in Guidance and Counseling	720

55. Master of Education in Educational Technology	720
56. Master of Education in Educational Psychology	720
57. Master of Education in Curriculum Studies	720
58. Master of Education in Administration and Management	720
59. Master of Education in Early Childhood Development and Education	720
60. Master of Business Administration	720
61. Master of Arts in Religion	720
62. Master of Arts in Project Planning and Management	720
63. Master of Arts in Literature	720
64. Master of Arts in Linguistics	720
65. Master of Arts in History	720
66. Master of Arts in Geography	720
67. PhD in Food Security and Sustainable Agriculture	1,170
68. PhD in Agricultural Extension	1,170
69. PhD in Agribusiness Management	1,170
70. PhD in Horticulture	1,170
71. PhD in Animal Science	1,170
72. PhD in Soil Science	1,170
73. PhD in Special Needs Education	1,170
74. PhD in Religion	1,170
75. PhD in Pure Mathematics	1,170
76. PhD in Public Health	1,170
77. PhD in Plant Taxonomy	1,170
78. PhD in Plant Ecology	1,170
79. PhD in Planning and Economics of Education	1,170
80. PhD in Planning	1,170
81. PhD in Physics	1,170
82. PhD in Pedagogy	1,170
83. PhD in Parasitology	1,170

84. PhD in Microbiology	1,170
85. PhD in Literature	1,170
86. PhD in Linguistics	1,170
87. PhD in Information Technology Security and Audit	1,170
88. PhD in Information Technology and Management	1,170
89. PhD in History	1,170
90. PhD in Health Informatics	1,170
91. PhD in Guidance and Counseling	1,170
92. PhD in Geography	1,170
93. PhD in Epidemiology and Biostatistics	1,170
94. PhD in Educational Psychology	1,170
95. PhD in Educational Administration and Management	1,170
96. PhD in Early Childhood Development and Education	1,170
97. PhD in Curriculum Studies	1,170
98. PhD in Chemistry	1,170
99. PhD in Business Information Systems	1,170
100. PhD in Business Administration	1,170
101. PhD in Applied Statistics	1,170
102. PhD in Applied Mathematics	1,170
103. PhD in Analytical Chemistry	1,170

1.5.3 Definitions

(a) Credit Hours

This is a minimum of three hours of work per week for sixteen weeks in a semester.

(b) Lecture/Instructional Hours

Three hours per week for fourteen weeks under which the students meet with the course instructor.

(c) Contact Hours

One-hour lecture per week per semester or two hour of tutorials/seminars per week per semester, which the instructor meets with the students.

(d) Course Units

A course unit is defined as that part of a semester subject described by coherent syllabus and taught normally over a period of a semester.

1.5.4 Academic organization of the programmes reflecting academic quarters/trimesters/ semesters

(a) The Master's programme will normally take two years undertaken by Coursework, Examination and Thesis. Students shall be required to take two Semesters of Coursework in the first year comprising six units per semester. In the second year the students will concentrate on Research and Thesis writing.

(b) Courses shall be offered in units. A course unit is defined as that part of a semester subject described by coherent syllabus and taught normally over a period of a semester. It is designated as a total of 45 Hours. For this purpose, one 1-hour lecture is equivalent to 2-hours tutorial or 3-hours practical or any combination as may be approved by the Board if the School of Agricultural and Food Sciences.

2. THE CURRICULUM

2.1 Title of the Proposed Programme

Master Food Value Chain Management

2.2 Philosophy of the Programme

The proposed Masters in Agricultural Commodities Value Chain Management (MACV) is designed to offer students application-oriented training for the advancement of efficient and sustainable agricultural value chain management in ord.er to spur economic growth and developments in the rural and periurban sectors.

2.3 Rationale of the Programme

The proposed Masters in Agricultural Commodities Value Chain Management Programme will train Specialists in the field of management for agricultural enterprises, organizations, and other government bodies. This master course is aimed at providing impetus on development of innovative portfolios and business plans for strategic decision-making in the transformative development of agricultural commodities value chain..

The program will emphasis on practical training of students in collaboration with leading Agricultural Academic and Research Institutions as well as Private sector enterprises and Organizations. Additionally, the Masters in Agricultural Commodities Value Chain Management Programme will augment collaboration between JOOUST and International Institutions in the consortium on educational and research areas. The program will also improve JOOUST development of cultural links and mutually beneficial academic and research collaborations globally.

Successful completion of the Programme will provide students with the opportunity for progression to higher scholarly levels of education.in related disciplines in the agricultural sector and management sciences.

The programme is anchored on relevant National, Regional, and International laws and policies including: i) National Agricultural Investment Plan (NAIP) a 10 year National Development Plan developed in tandem with the Agricultural Sector Transformative Growth Strategy (ASTGS)

which is 5 year plan up to 2024 designed to accelerate agricultural transformation in alignment with the Big 4 Agenda, and the Comprehensive African Agricultural Development Programme (CAAP), and the United Nations Sustainable Develo0pment Goals. Other relevant laws and policies on which the programme is premised include: GOK, Laws of Kenya, Agriculture Act Chapter 318 (Revised Edition 20212) which is an Act of Parliament to promote and maintain a stable agriculture, as well as stimulate the development of agricultural land in accordance with good agricultural practices; ii) National Agricultural Sector Extension Policy (NASEP) which emphasize the role of Extension services in Agriculture, situational analysis of Agricultural Extension services, Extension Policy Objectives, Policy on Agricultural Extension, and the Implementation Framework; iii) East African Community (EAC) Strategic Interventions plan. Which include Agriculture and Rural Development strategy outline

2.4 Goal of the Programme

The goal of the Masters in Agricultural Commodities Value Chain Management is to train students to become specialists in application-based agriculture management. The program will not only contribute further towards the elevation of the status of JOOUST internationally, but it will also further strengthen the cultural and academic linkages and networking between JOOUST and universities with similar program in the Consortium.

2.5 Expected Learning Outcomes of the Programme

On successful completion of the proposed Masters in Agricultural Commodities Value Chain Management the students should be able to:

(a) Evaluate the global range of responsibilities in the management and guidance of agriculture management businesses;
(b) Appraise the knowledge acquired in agriculture research, agriculture administration, and agriculture service industry for sustainable agricultural development;
(c) Identify teaching and mentorship responsibilities in vocational education and training and in professional development;
(d) Explore practical-based experiences and skills for solving problems associated with management through team-work with researchers as well as decision and policy makers;
(e) Assess the implementation of practical interventions for solving problems in agricultural management;

(f) Characterize Agribusiness ideas and turn them into versatile business ventures for income and wealth creation

(g) Examine proficient communication strategies for a diverse group of people through oral and written scientific media;

2.6 Mode of Delivery of the Programme

The proposed Masters in Agricultural Commodities Value Chain Management will be delivered in English at JOOUST. Course units will be conducted in the teaching facilities, including lecture halls, laboratories, greenhouses and fieldwork, through interactions in the form of lectures, seminars, laboratory practicals, field activities and group discussions. In addition, students will get the opportunity to visit and do part of their graduate programme with other national, regional and international institutions with which the School of Agricultural and Food Sciences has joint collaborative projects. In this way, students in the master's degree programme can develop their career and gain real world experience in the field of agricultural management.

2.7 Academic Regulations for the Proposed Programme

2.7.1 Admission Requirements for the Proposed Prgramme

JOOUST criteria for a Master's Degree Programme shall apply:

Candidates wishing to pursue a master's degree programme in Masters in Agricultural Commodities Value Chain Management at Jaramogi Oginga Odinga University of Science and Technology must meet the following requirements:

(i) Holders of at least Second Class Upper Division (Honours) Bachelor's degree in a relevant discipline. This includes but not limited to Agricultural Sciences, and related courses or equivalent qualification from recognized Universities.

(ii) Holders of Second Class Lower Division (Honours) Degree in a relevant discipline. This includes but not limited to Agricultural Sciences, and related courses or equivalent qualification from recognized Universities. The applicant must in addition provide evidence of two years of relevant work experience.

(iii) In addition to the above, applicants must meet the specific requirements of the Master's Programme as provided by the University Senate.

2.7.2 Regulations on Credit Transfer in a Programme

This does not apply according to the university policy.

2.7.3 Course Requirements

This should include all requirements of the course such as:

(a) Student class attendance, and either relevant industrial attachment, or practicum.
   (i) The students will be required to attend at least two thirds of lectures and in all the course units to qualify to sit for the final University examinations.
   (ii) Students will be required to undertake practicals and/or industrial attachment as planned by the course lecturer.

(a) Obligations of the lecturer should entail aspects of course delivery and facilitation.
   (i) The lecturer will develop the course outline to be used in delivery of the course.
   (ii) The lecturer will deliver the course according to the prescribed mode.
   (iii)The lecturer will evaluate the students.

2.7.4 Student Assessment Policy/Criteria

The University policy on teaching and Examinations management shall apply.

(a) Continuous Assessment Tests (CATs):

The ordinary examination shall be graded on the basis of percentage marks consisting of 40% as CATs.

(b) End-Semester:

The student will undertake university examinations. Examinations shall be held at the end of the semester in which the courses are taught. The ordinary examinations shall be graded on the basis of percentage marks consisting of forty per cent (40%) as CATs and and 60% as final examinations. Continuous assessment on research shall be reflected in the candidates' progress reports submitted by the supervisors.

(c) Practicals and industrial attachments:

Where practicals and/or industrial attachments are offered, students will be assessed as part of the CAT and will contribute 10% of the totals CAT marks.

(d) Other Assessments:

Where research is undertaken in form of a case study or experiment, students will be expected to Submit a report which will be graded as part of the Continuous assessment Test. This will contribute 10% of the total CAT marks.

2.7.5 Grading System

The grading shall be done as follows:

Grade	**Score**
75- 100%	A (Excellent)
65 – 74%	B (Credit)
50 – 64%	C (Pass)
Below 50%	F (Fail)

Designations related to examinations shall be as follows:

P: Pass

I: Incomplete

K: Course in Progress

Au: Audit

a) The passing grade shall be **C = 50%** in each course taken and examined.
b) A candidate who fails a semester examination shall re-sit the same when next offered. If the candidate fails the re-sit examination, he/she shall be discontinued.
c) Marking and grading of the examinations are done by the course instructor who also enters the grade in the Instructors Grade Sheet. The results are then moderated by the relevant Departmental Examination Board (DEB).
d) The scripts are then forwarded to the external examiner who reviews them and returns them to the Chairman, Department of Agriculture Economics and Agribusiness Management.

2.7.6 Examination Regulations

(a) Written Examinations

(i) Examinations for the proposed master's degree programme shall be conducted under the authority of the University Senate as specified under various rules and regulations.

(ii) Examinations shall consist of:

a. Continuous assessment based on assignments, field practicals, laboratory practicals/industrial attachments and such other tests as the regulations of the Department may prescribe, which shall constitute forty per cent (40%) of the total marks for each course.

b. The final examinations shall constitute sixty per cent (60%) of the total marks for each course.

(iii) Courses which are purely of practical nature and/or seminars may be assessed entirely by continuous assessment.

(iv) Marks obtained in examinations shall be converted into letter grades as follows:

75 % and above	A (Distinction)
65-74%B	(Credit)
50-64%	C (Pass)
Below 50 %	F (Fail)

(v) Re-sit Examinations

a. A candidate who fails in twenty-five per cent (25%) or less of the total courses taken in an academic year shall be required to re-sit examination once only.

b. Candidates shall be awarded grade "C" (50%) in all courses passed in re-sit examination.

(vi) Discontinuation

A student shall be discontinued for:

a. Failing more than twenty-five percent (25%) of the total courses taken in an academic year;

b. Failing a re-sit examination;

c. Committing serious examination malpractice as defined under Section 6.1 of these regulations; and

d. Failing to register for and attend scheduled lectures for two (2) weeks or longer without the consent of the University Senate.

(vii) Special Examinations

a. Special examinations will be offered to candidates who, due to circumstances acceptable to the University Senate, were unable to sit for the ordinary examinations.

b. Special examinations shall be graded on the same guidelines as those for the ordinary examinations

c. No student shall be permitted to proceed to the next year of study without having satisfied all examination requirements.

d. Examination results shall be processed and approved by the School Board of Examiners and submitted to the Board of Postgraduate Studies for ratification before being presented to University Senate by Dean, School of Agricultural and Food Sciences (SAFS)

(b) Thesis

(i) A candidate will proceed to conduct thesis research upon successful completion of the coursework.

(ii) A candidate will be required to identify a research area and write a thesis on original work.

(iii) A candidate shall prepare and write the thesis according to regulations governing postgraduate studies.

(iv) A candidate must defend the thesis according to supervision and examination guidelines as stipulated in the Board of Postgraduate Studies Rules and Regulations.

(c) Supervision

(i) A candidate shall choose a supervisor(s) in consultation with the Dean, School of Agricultural and Food Sciences or Chairman, Department of Agriculture Economics and Agribusiness Management and the Postgraduate Studies Committee. The candidate shall have a minimum of two supervisors – one of whom shall be the major supervisor.

(ii) One of the supervisors may be from outside the University. However, one of the supervisors must be a member of staff of the University.

(iii) The appointment of the supervisors shall be done within six months from the time of registration.

(iv) The appointment shall be done by the Chairman of the University Senate on recommendation by the Chairman of the Postgraduate Studies Committee.

(d) Consultation and Progress on Thesis

(i) A candidate is required to consult with supervisors regularly. The major supervisor shall

submit to the Board of Postgraduate Studies and the Dean, School of Agricultural and Food Sciences, a progress report on the candidate each trimester.

(ii) A candidate is required to exhibit steady progress in the coursework and thesis/project work. If the progress is not satisfactory, the Board of Postgraduate Studies through recommendations of the School will warn the student in writing. If a candidate does not show improvement within one trimester after a warning, he/she shall be recommended to Senate for deregistration.

(iii) If a candidate does not receive adequate supervision, the candidate shall write to the Board of Post Graduate Studies explaining inadequacies in supervision, in which case the Board may change the supervisor(s) upon recommendation by the School.

(e) Defense of Thesis or Project Report

(i) The candidate after successful completion of coursework will be expected to write a thesis.

(ii) The final examination of the thesis will be administered as an oral defense. Successful defense qualifies the candidate for graduation.

(iii)The defense will take place only after the candidate has satisfied all other requirements of the programme.

(iv) The Board of Postgraduate Committee shall constitute a Board of Examiners for the thesis. The Board of Examiners shall include:

a. The Dean, School of Agricultural and Food Sciences – Chair

b. Chairman, Department of Agriculture Economics and Agribusiness Management c. The supervisor(s)

d. Internal supervisors

e. The External Examiner or his/her written report f. A Senate representative

g. Administrative Officer, Board of Postgraduate Studies, Secretary

h. Other members may attend to listen to the defense but cannot vote on any matter relating to the defense.

(v) The outcome of the defense shall be communicated to the candidate immediately.

(vi) All members of the Board of Examiners shall sign a certificate to indicate whether the

candidate has passed, deferred or failed. If a candidate is requested to make some corrections, a certificate of correction shall be issued.

(vii) The final grade for the thesis shall be graded on a PASS or FAIL basis.

(viii) A candidate who fails in the thesis shall be allowed to resubmit the thesis/project within a period of not more than three months, failing which the candidate will be discontinued.

(ix) On passing the final examination, the candidate will be required to submit six (6) copies of the final thesis and then proceed with preparation for graduation.

(f) Programme Evaluation and Change

The proposed International Master Food Value Chain Management curriculum is dynamic and requires continuous monitoring and evaluation to ensure that it remains relevant, current, competitive and responsive to the needs of the individual students, country and educational sector.

a. The curriculum shall be evaluated every three years or when need arises.
b. Any recommended or proposed changes shall be presented in the School Board meetings.
c. Course and teaching evaluation shall be conducted at least once a year.
d. Evaluation of teaching staff will be conducted through appraisals from students and Senate. The evaluation of lecturers will be conducted in line with the University Quality Assurance guidelines.
e. Evaluation of students will be conducted through students' examinations.

For quality assurance students shall evaluate their lecturers based on:

1. Degree of preparedness.
2. Presentation of course content (skills) communication.
3. Punctuality in starting and ending classes.
4. Promptness in returning marked assignments.

2.7.7 Moderation of Examinations

The examinations shall be set by internal examiners and moderated by external examiners. Marking of examinations shall also be done by internal examiners and moderated by external

examiners before the final moderated result is taken to Senate for approval. After the results are approved by Senate, they will become the official examination results of the university.

2.7.8 Graduation Requirements

a. Successful completion of 10 units of course work.
b. Publish at least one article in a referred journal.
c. Successful defense of the thesis.

2.7.9 Classification of Degrees

The degree is non-classified.

2.7.10 Description of Thesis

a. Institutional Definition of Thesis:

An essay or dissertation involving personal research, written by a candidate for a college degree.

b. Rationale of the Thesis

Thesis will demonstrate scholarship through generation and analysis of data for creation of new knowledge in the field of agricultural management and contributions to the global efforts for enhancing food and nutritional security. Capacity of the student to consolidate Thesis is an output of students' research, and will be demonstrated though logical presentation of ideas.

c. Facets of the Thesis

The thesis will normally consist of the following key sections: Title page, abstract, introduction, literature review, materials and methods, results, conclusions, recommendations and references.

d. Regulations of the Thesis/Dissertation/Project

(i) A candidate will proceed to conduct thesis research upon successful completion of the coursework.

(ii) A candidate will be required to identify a research area and write a thesis on original work.

(iii)A candidate shall prepare and write the thesis according to regulations governing postgraduate studies.

(iv) A candidate must defend the thesis according to supervision and examination guidelines as stipulated in the Board of Postgraduate Studies Rules and Regulations.

2.7.11 Course Evaluation

Course evaluation should include the procedures of course evaluation and the evaluation of all aspects of the course including:

Course Content

The course content consists of the scope, theories and main topics including emerging issues to be covered in the course unit.

Instructional Process

Student's registration for the units, class attendance, the course outline, delivery of the course (Lectures, practicals, case studies, seminars and guest lectures), CATs, setting and marking of examination and internal and external moderation of examinations.

Infrastructure and Equipment

Lecture rooms, greenhouses, farms, LCD, laboratories, machinery, furniture, and library.

Instructional and Reference Materials

Core text books and other books, reference books, journals and e resources.

Assessments

ISO students' evaluation form in which the students are able to evaluate the course and the lecturer at the end of the semester. This is conducted by the office of Quality Assurance and Enhancement. Internal and external moderation of examinations and internal and external moderation of results is conducted to ensure quality. The programme has an embedded monitoring and evaluation (M & E) that involves both the student and the supervisor.

2.8 Management and Administration

(i) The proposed Masters in Agricultural Commodities Value Chain Management Programme is designed to be offered at JOOUST by the School of Agricultural and Food Sciences in collaboration with the other national, regional and international institutions.

(ii) In the management of the programme, the School of Agricultural and Food Sciences will supervise the delivery of the proposed programme (iii) Lecturers from the University and partners from other national, regional, and international institutions and networks will provide lectures and monitor progress of students. Where such approach is inadequate, qualified part time lecturers will be recruited to support the proposed programme. In addition, lecturers from collaborating universities and research institutions both within and outside Kenya, especially from the Consortium Group of Universities, will be engaged in the programme as visiting or exchange staff. Ultimately, this multi-partner and multi- institutional approach to teaching will enhance capacity building at the local level.

(iv) The Chairman, Department of Agriculture Economics and Agribusiness Management in consultation with the Dean, School of Agricultural and Food Sciences shall appoint a qualified Faculty member as the Academic Program Leader.

(v) Regular Program review, relevant stakeholders' reviews, departmental and regular School boards, course evaluation, external examiners and moderation during delivery, university policy on quality, CUE standards, ISO standards.

2.9 Courses /Units

The courses/units offered should include:

2.9.1 A distribution table comprising of a summary of the number of courses/units/credit hours/lecture hours allocated to the institution's core courses of the proposed programme, and specialization area of courses

2.9.1.1 Compulsory Courses/Units

Year 1 Semester 1 Internship (Report + Oral Examination)

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Internship	Total	
AAE 5211:	Introduction to Food Value Chain Management	0	270	270	1C
	Total	**0**	**270**	**270**	**1**

2.9.1.2 Compulsory Courses/Units

Year 1 Semester 2 Introduction and Science of Raw Materials

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AAE 5116	Food Technology	30	15	45	1C
AAE 5117	Agricultural Economics	30	15	45	1C
AAE 5118	Food Quality Management	30	15	45	IC
AAE 5119	Scientific Working + Data Management	30	15	45	IC
AAE 5120	Agripreneurship	30	15	45	1C
	Total	**180**	**90**	**270**	**6**

Year 2 Semester 1Trends and Innovations in Value Chains

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AAE 5116	Agricultural Marketing	30	15	45	1C
AAE 5117	Institutional and Environmental Economics	30	15	45	1C
AAE 5118	Interdisciplinary Research Project	30	15	45	IC
AAE 5119	Agricultural Operating Systems / Consulting Methodology	30	15	45	IC
AAE 5120	Deutsch als Fremdsprache - Aufbaustufe (B1 GER)	30	15	45	1C
	Total	**180**	**90**	**270**	**6**

Year 2 Semester 2

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Research	Total	
AAE 5211	Scientific Working: Master's Thesis	0	270	270	1C
	Total	**0**	**270**	**270**	**1**

9.2 A matrix showing the courses that are covered by each expected learning outcomes of the proposed programme and specialization areas. Below is a skeleton of the matrix:

Learning Outcomes	**Year 1**		**Year 2**	
Proposed Programme Learning Outcomes	**Courses**	**Lecture Hours**	**Research & Thesis**	
Assume a broad range of responsibilities in the management and guidance of agriculture management	Business Management	45		
	Production Economics	45		
	Agricultural Enterprise Management	45		
	Business Planning	45		

Businesses	Project Planning and Management	45		
Apply the knowledge acquired in agriculture research, agriculture administration, and agriculture service industry	Business Informatics and Empirical Research	45		
	Agricultural Policy	45		
	Topics in Agricultural Management	45		
Assume teaching and mentorship responsibilities in vocational education and training and in professional development	Project Planning and Management	45		
	Agricultural Policy	45		
	Topics in Agricultural Management	45		
Acquire practical-based experiences and skills for solving problems associated with management through team-work with researchers as well as decision and policy makers	Statistical Methods	45		
	Business Management	45		
	Production Economics	45		
	Business Informatics and Empirical Research	45		
	Project Planning and Management	45		
	Business Planning			
Design and implement effective interventions for solving problems in agricultural management;	Business Management	45		
	Production Economics	45		
	Business Informatics and Empirical Research	45		
	Business Planning	45		
	Agricultural Enterprise Management	45		
	International Agricultural Marketing Strategies	45		

Communicate proficiently to a diverse group of people through oral and written scientific media Acquire critical thinking attributes to nurture agricultural commodity value chain opportunities into business ideas and ventures.	Business Management	45		
	Business Informatics and Empirical Research	45		
	Business Planning	45		
	Topics in Agricultural Management	45		
	Agripreneurship	45		
	International Agricultural Marketing Strategies	45		

2.9.3 A list of the courses of the proposed programme. For each course, the following are included:

1. Course codes, which should reveal the programme type, specialization area, level and year of study and should be unique to every course;
2. Course title, descriptive of the content of the course; and
3. Credit hours and/or lecture hours.

2.9.4 A list of the courses of the proposed programme to be taken by the students by quarter/trimester/semester per subject /discipline including the following:

a. Minimum lecturer workload for the course, which should include preparation time for teaching and practical, actual teaching time, setting, administering and marking of continuous assessments and final examinations.

This is guided by the University procedures on teaching and examinations management

which have been attached (Appendix VI).

b. Minimum student workload for the course, which should include attending lectures, seminars, independent/private study, assignments, practicals, preparation for and sitting for continuous assessments and final examinations.

This is guided by the University procedures on teaching and examinations management, which have been attached.

2.9.5 Total credit hours, lecture hours, contact hours and course units required for graduation. This should be in conformity with the Commission's document on Universities Standards and Standards, the minimum national standards (where available) and professional bodies requirements (where applicable).

The table shows the structure of the programme. Each student must successfully undertake 12 course units. The course units have been described in details on the lectures and practical hours' requirements.

Year 1 Semester 1

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AAE 5111	Business Management	30	15	45	1C
AAE 5112	Production Economics	30	15	45	1C
AAE 5113	Agricultural Enterprise Management	30	15	45	1C
AAE 5114	Business Informatics and Empirical Research	30	15	45	1C
AAE 5115	Business Planning	30	15	45	1C
	Total	**180**	**90**	**270**	**6**

Year 1 Semester 2

	Course Title	Contact Hours			Weight
Course Code		**Lecture**	**Practical**	**Total**	**(Unit)**
AAE 5116	Agricultural Policy	30	15	45	1C
AAE 5117	International Agricultural Marketing Strategies	30	15	45	1C
AAE 5118	Topics in Agricultural Management	30	15	45	IC
AAE 5119	Project Planning and Management	30	15	45	IC
AAE 5120	Agripreneurship	30	15	45	1C
	Total	**180**	**90**	**270**	**6**

Year 2 Semester 1

Course Code	**Course Title**	**Contact Hours**			**Weight (Unit)**
		Lecture	**Research**	**Total**	
AAE 5211	Thesis I	0	270	270	1C
	Total	**0**	**270**	**270**	**1**

Year 2 Semester 2

Course Code	**Course Title**	**Contact Hours**			**Weight (Unit)**
		Lecture	**Research**	**Total**	
AAE 5211	Thesis II	0	270	270	1C
	Total	**0**	**270**	**270**	**1**

2.10 Duration and Structure of the Programme

The proposed International Masters in Agricultural Management will be undertaken by coursework, examination and thesis work. The programme shall normally take two years of study. Year one of study will comprise of two semester course work while year two of study will comprise of research and thesis writing. The students shall take five compulsory course units in year onesemester one. In year one semester two, the students shall take five compulsory course units. The second year of study will be dedicated for proposal, research and thesis writing.

3. COURSES

Year 1 Semester 1

AAE 5111: Business Management

Purpose of the Course:

The purpose of the course is to teach students the principles, qualities, and skills required for management, human resource, marketing and sales or administration in a wide variety of business settings and organizations. Students will also learn the basics of teamwork, and decision-making under unusual situations – including conditions of risks and uncertainties.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Identify the conceptual learning skills in today's business environment;
2. Analyze financial performance of an organization;
3. Evaluate organizational decisions with consideration of the political, legal and ethical aspects of business; and
4. Assess strengths, weaknesses, opportunities and threats of the business environment.

Course Content:

Introduction to management; Planning and mission; Environments and strategic management; Decision-making; organizational structure; Human resource management; Groups, teams, and

team-work; Culture and diversity; Leadership; Motivation; Individuals and organizations; Ethics in business; communication; Control; Globalization and business.

Mode of Delivery:

Face to face lectures, small group problem-based discussions followed by presentations and panel discussions, and individual work/assignments.

Instructional Materials and/or Equipment:

LCD projector, Smart Board, Text books, Journals.

Course Assessment:

CATS	40%
Final	Examination60%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials:

1. E.H. Sherman (2015) A Manager's Guide to Financial Analysis: Powerful Tools for Analyzing the Numbers and Making the Best Decisions for Your Business. 6th Edition. American Management Association
2. G.H. Laursen, and J. Thorlund (2017) Business Analytics for Managers: Taking Business Intelligence Beyond Reporting. 2nd Edition. John Wiley & Sons, NJ, USA
3. A.B. Carroll, and A.K. Buchholtz (2009) Business Society: Ethics and Stakeholder Management. South-Western, OH, USA
4. M. Weske (2012) Business Process Management: Concepts, Languages, Architectures. 2nd Edition. Springer-Verlag Berlin Heidelberg, Germany
5. P. Hopkin (2017) Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management. 4th Edition. The Institute of Risk Management, NY, USA
6. J. Jeston, and J. Nelis (2006) Business Process Management: Practical Guidelines to Successful Implementations. 1st Edition. Butterworth-Heinemann, MA, USA

Recommended Reference Materials

1. E. Stubbs (2013) Delivering Business Analytics: Practical Guidelines for Best Practice. John Wiley & Sons Inc., NJ, USA
2. N.M. Scarborough (2011) Essentials of Entrepreneurship and Small Business Management. 6th Edition. Pearson Publishing, Inc., NJ, USA
3. T.L. Wheelen, and J.D. Hunger (2012) Strategic Management and Business Policy: Toward Global Sustainability. 13th Edition. Pearson Education, Inc., NJ, USA

AAE 5112: Production Economics

Purpose of the Course:

This course is designed to introduce students to neoclassical factor-product, factor-factor and product-product models, linear programming, risk and uncertainty and inter-temporal resource allocation, and contemporary production theory in factor and product markets.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Examine the different fields of agricultural economics, including the food industry;
2. Analyze the demand and price trends;
3. Assess consumer behavior and market price determination;
4. Evaluate the production economics, cost analysis, and optimal output levels; and
5. Determine competitive environments such as perfect and imperfect competition;

Course Content:

Lectures: Topics to be covered include: Introduction to production economics; Production and profit maximization; Returns to scale, Homogenous functions, and Euler's theorem; Elasticity of substitution; Demand for inputs in production process; Product and input prices; General product and input conditions; Enterprise budgeting and marginal analysis; Decision-making in an environment of risk and uncertainty; Time and agricultural production processes; Linear programming and marginal analysis; Frontiers in agricultural production economics research; Contemporary production theory; Governments and commodity pricing

Seminars: Topics to be covered include: Production and inventory control; Investment and financial planning in production; Manufacturing strategy; Supply chain management; Productivity and performance analysis; Workload control; Reverse logistics; Asset management; Innovation and technology management.

Mode of Delivery:

The teaching and learning approaches shall combine face to face class room lectures, and take-home assignments as well as group discussions and topical presentations.

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment:

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials:

1. D.L. Debertin (2012) Agricultural Production Economics. 2nd Edition. University of Kentucky, USA
2. D.L. Debertin (2012) Applied Microeconomics: Consumption, Production and Markets. 2nd Edition. University of Kentucky, USA
3. G.W. Norton, J. Alwang, W.A. Masters (2010) Economics of Agricultural Development: World Food Systems and Resource Use, Second Edition. Routledge, NY, USA
4. P.L. Pingali, and R.E. Evenson (2010) Handbooks in Agricultural Economics. Agricultural Economics. Volume 4. North-Holland, Amsterdam, The Netherlands
5. P.B.R. Hezell, and R.D. Norton (1986) Mathematical Programming for Economic Analysis in Agriculture. Macmillan Publishing Co., NY, USA
6. A. Barkley, and P.W. Barkley (2013) Principles of Agricultural Economics. Routledge,

NY, USA

7. M. Behnassi, S.A. Shahid, and N. Mintz-Habib, Edition (2014) Science, Policy and Politics of Modern Agricultural System. Global Context to Local Dynamics of Sustainable Agriculture. Springer Dordrecht, The Netherlands
8. H. Geman (2015) Agricultural Finance: From Crops to Land, Water and Infrastructure. John Wiley & Sons Ltd, West Sussex, England

Recommended Reading Materials for the Course

1. D. Colman, and T. Young (1989) Principles of Agricultural Economics: Markets and Prices in Less Developed Countries. Cambridge University Press, Cambridge, UK
2. B.L. Gardner, and G.C. Rausser (2001) Handbook of Agricultural Economics. Volume 1A. Agricultural Production. Elsevier Science B.V.
3. R. Evenson, and P. Pingali, Edition (2007) Handbook of Agricultural Economics. Volume 3. Agricultural Development: Farmers, Farm Production and Farm Markets. North-Holland, Amsterdam, The Netherlands
4. M. Harrison, and P. Waldron (2011) Mathematics for Economics and Finance. Routledge, NY, USA

Recommended Journals

1. International Journal of Production Economics. https://www.journals.elsevier.com/international-journal-of-production-economics
2. International Journal of Production Research. https://www.tandfonline.com/toc/tprs20/current
3. International Journal of Operations and Production Management. https://www.emeraldgrouppublishing.com/journal/ijopm?id=ijopm
4. Managerial and Decision Economics. https://onlinelibrary.wiley.com/journal/10991468
5. Managerial Economics. https://journals.indexcopernicus.com/search/details?id=24724
6. Journal of Production Research and Management. http://stmjournals.com/Journal-of-Production-Research-and-Management.html
7. Applied Economic Policies and Perspective.

https://onlinelibrary.wiley.com/journal/20405804

AAE 5113: Agricultural Enterprise Management

Purpose:

The purpose of the course is to teach students business knowledge and work experience needed to advance in management positions in the enterprise service sector. The course will also give

students the skills to set up their own business and learn how to grow and develop strategically. As students explore the basis of entrepreneurial activity, they will further develop their business and management skills necessary for identification and response to new business opportunities.

Expected Learning Outcome:

Upon completion of the course the students should be able to:

1. Explore disciplinary knowledge and practice to independently describe the process of building a business from start-up to national and international success;
2. Assess critical thinking as a means in make sound decisions, and recommend sound decisions to common problems using given theoretical framework;
3. Identify suitable skills in academic and information literacy (in respect to academic writing), and time- and self-management; and
4. Evaluate innovative skills in working effectively as a team member

Course Content:

Topics to be covered include: Introduction to agricultural enterprise management; Entrepreneurship; Developing a start-up business; Leading and managing a business; Exploration of monitoring and control of operations; Managing human resource; Managing marketing mix (promotion); Managing customer relationships; Managing growth; Business in a global environment; Communication skills; Performance metrics applied to operations and processes; Approaches for managing under conditions of uncertainty - includes risk analysis and scenario-based planning; Application of process mapping tools for visualization and improvement of business processes

Mode of Delivery:

The teaching and learning approaches shall combine face to face class room lectures, take-home assignments, group discussions and field visits

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment:

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials:

1. J. Fraser, and B.J. Simkins (2010) Enterprise Risk Management. John Wiley & Sons, Inc., NJ, USA
2. M.M. Pompian (2006) Behavioral Finance and Wealth Management: How to Build Optimal Portfolios that Account for Investor Biases
3. J. Wood, W. Brown, and H. Howe (2013) IT Auditing and Application Controls for Small and Mid-Sized Enterprises: Revenue, Expenditure, Inventory, Payroll, and More. John Wiley & Sons, Inc., NJ, USA
4. R.E. Caves (2007) Multinational Enterprise and Economic Analysis. 3rd Edition. Cambridge University Press, Cambridge, UK
5. G.C. Reid (1993) Small Business Enterprise: An Economic Analysis. Routledge, NY, USA
6. L. Becchetti, and C. Borzaga, Edition (2010) The Economics of Social Responsibility: The World of Social Enterprises. Routledge, NY, USA
7. M. Ricketts (2002) The Economics of Business Enterprise: An Introduction to Economic Organisation and the Theory of the Firm. International Student Edition. Edward Elgar Publishing, Inc., MA, USA

Recommended Reference Materials

1. J.C. Goodpasture (2016) Project Management the Agile Way: Making it Work in the Enterprise. 2nd Edition. J. Ross Publishing, USA
2. COBIT (2012) Business Framework for the Governance and Management of Enterprise IT. ASIACA, IL, USA
3. P. Hopkin (2017) Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management. The Institute of Risk Management, NY, USA

4. The Institute of Chartered Accountants of India (2008) Strategic Management. Professional Competent Course Study Material. Sahitya Bhawan Publications, India
5. Information Resources Management Association USA (2011) Enterprise Information Systems: Concepts, Methodologies, Tools and Applications. IGI Global, NY, USA
6. M. Peris-Ortiz, F. Teulon, and D. Bonet-Fernandez, Edition (2017) Social Entrepreneurship in Non-Profit and Profit Sectors: Theoretical and Empirical Perspectives. Springer International Publishing AG, Switzerland

AAE 5114: Business Informatics and Empirical Research

Purpose of the Course:

This course will expose students to new empirical analytic method for economics which goes beyond the traditional theoretical analysis. The course is a combination of information science and economics which is comprised of computerized economic society, systems science and information science. Students will learn practical operations of a computers in various economic environments.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Assess the research-based knowledge of knowing how digital technology is developed and put to use;
2. Analyze theories of technology development and digital economics;
3. Evaluate the contribution of platform economics in the development of digital ecosystems;
4. Examine the business and organizational opportunities and challenges of digitalization and digital management;
5. Determine the required capacity buliding in the development and implementation of operational software applications; and
6. Explore the theoretical and practical subject areas in the applications of information and communication technologies

Course Content:

The topics to be covered include: Fundamentals of programming; Java programming; Corporate management; Meta-modeling; Interoperability; Workflow technologies; Digital economics; Micro- and macroeconomics; (Enterprise information systems; Information technology security and artificial intelligence; Database systems; Project management and organization; Integrated management systems (SAP); Production, logistics and transport; Finance; Data analysis and statistics; Database design; Human-computer interaction (HCI); Expert systems design; Computer networks; Software engineering and architecture

Mode of Delivery:

The teaching and learning approaches shall combine face to face class room lectures, and take-home assignments as well as group discussions and topical presentations.

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment:

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials for the Course:

1. M. Ellis, J. Liu, and P.D. Chrisofides (2017) Economic Model Predictive Control: Theory, Formulations and Chemical Process Applications. Springer International Publishing. Switzerland
2. K. Schmidt (2011) Cooperative Work and Coordinative Practices: Contributions to the Conceptual Foundations of Computer-Supported Cooperative Work (CSCW). Springer-Verlag London Limited
3. Y. Luo, L. Gao, and J. Huang (2016) Economics of Database-Assisted Spectrum Sharing. Springer International Publishing, Switzerland
4. F. Zhao (2006) Entrepreneurship and Innovations in E-Business: An Integrative Perspective. Idea Group Inc., PA, USA

5. J.G. Boyce, and D.W. Jennings (2002) Information Assurance: Managing Organizational IT Security Risks. Elsevier Science, USA
6. K. Schwalbe (2011) Information Technology: Project Management. Revised 6th Edition. Course Technology, Cengage Learning, MA, USA
7. J. Xu, L. Yao, and Y. Lu (2014) Innovative Approaches Towards Low Carbon Economics: Regional Development Cybernetics. Springer-Verlag Berlin Heidelberg, Germany
8. J.A. Hall (2011) Accounting Information Systems. 7th Edition. Cengage Learning, OH, USA
9. C. Tang (2016) The Data Industry: The Business and Economics of Information and Big Data. John Wiley & Sons Inc., NJ, USA
10. P. Cane, and H. Kritzer, Edition (2010) The Oxford Handbook of Empirical Legal Research. Oxford University Press Inc., NY, USA
11. M. Harrison, and P. Waldron (2011) Mathematics for Economics and Finance. Routledge, NY, USA

Recommended Reading Materials for the Course:

1. D. Romer (2012) Advanced Macroeconomics. 4th Edition. McGraw-Hill, NY, USA
2. T.W. Malone, and M.S. Bernstein, Edition (2015) Handbook of Collective Intelligence. MIT Press, MA, USA
3. M. Mano (2014) Computer Systems Architecture. 3rd Edition.
4. J. Maindonald, and W.J. Braun (2003) Data Analysis and Graphics Using R – an Example-Based Approach. 3rd Edition. Cambridge University Press, Cambridge, UK
5. Information Resources Management Association USA (2011) Enterprise Information Systems: Concepts, Methodologies, Tools and Applications. IGI Global, NY, USA
6. L. Null, and J. Lobur (2003) The Essentials of Computer Organization and Architecture. Johns and Bartlett Publishers Inc., MA, USA
7. N. Nattrass, and G.V. Varma (2014) Macroeconomics Simplified: Understanding Keynesian and Neoclassical Macroeconomic Systems. SAGE Publications Inc., CA, USA

AAE 5115: Business Planning

Purpose of the Course:

This course will introduce students to enterprise planning and show how organizations plan to run their operations more efficiently and effectively. Students will learn about the critical success factors and implementation strategies that lead to success of enterprise system, and about the informational, knowledge, and decision-making opportunities afforded by enterprise systems.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Analyze basic issues in enterprise planning;
2. Assess the scope of common enterprise planning;
3. Identify key technical terminologies in enterprise information systems as they apply in different ERP products and development methods;
4. Evaluate the challenges associated with implementing enterprise plans and their impacts on organizations;
5. Determine the selection, acquisition and implementation of enterprise plans;
6. Use a leading Enterprise Systems package (SAP) to support business operations and decision-making;
7. Communicate and assess readiness of organizations for implementation of enterprise plans with a professional approach in written form; and
8. Demonstrate an ability to work independently and in a group.

Course Content:

Topics to be covered include: Introduction to enterprise planning for management; Integration of enterprise plans; Architecture of enterprise planning; Development life cycle implementation strategies; Software and vendor selection; Using information system to improve processes; Business intelligence and information system; Mapping enterprise architectural resources; Enterprise resource planning applications and issues specific to these applications, their configuration, and management; Enterprise resource planning projects; operations and post-implementation; Program and project management; Organizational change and business process re-engineering; Supply chain management; Customer relationship management; Enterprise

resource risk management; Methods simplified planning of agricultural enterprises; Methodology of basic financial calculations in planning of the agricultural enterprise; Methods of assessing effectiveness of investment projects in agriculture.

Mode of Delivery:

The teaching and learning approaches shall combine face to face class room lectures, take-home assignments, group discussions and topical presentations

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment:

CATS	30%
Final Examination	70%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials:

1. E.F. Monk, and B.J. Wagner (2013) Concepts in Enterprise Resource Planning. 4th Edition. Course Technology, Cengage Learning, MA, USA
2. T.H. Davenport (2013) Enterprise Analytics: Optimize Performance, Process, and Decisions through Big Data. International Institute for Analytics, NJ, USA
3. D. Butler (2006) Enterprise Planning and Development: Small Business Start-up, Survival and Development. Elsevier Ltd., MA, USA
4. K.G. Kempf, P. Keskinocak, and R. Uzsoy, Edition (2011) Planning Production and Inventories in the Extended Enterprise: A State-of-the-Art Handbook, Volume 2, Springer Science+Business Media, LLC, NY, USA
5. A. Gorelik (2019) The Enterprise Big Data Lake: Delivering the Promise of Big Data and Data Science. O'Reilly Media, Inc., CA, USA

6. R. Friedman (2016) The agile consultant: Guiding clients to enterprise agility. Springer Science+Business Media, NY, USA

Recommended Reference Materials:

1. A. Philips (2013) Designing Urban Agriculture: A Complete Guide to the Planning, Design, Construction, Maintenance, and Management of Edible Landscapes. John Wiley & Sons, Inc., NJ, USA
2. K. Ganesh, S. Mohapatra, S.P. Anbuudayasankar, and P. Sivakumar (2014) Enterprise Resource Planning Fundamentals of Design and Implementation. Springer International Publishing, Switzerland
3. T.Y. Sawyer (2014) Financial Modeling for Business Owners and Entrepreneurs: Developing Excel Models to Raise Capital, Increase Cash Flow, Improve Operations, Plan Projects, and Make Decisions. APRESS

Year 1 Semester 2

AAE 5116: Agricultural Policy

Purpose of the Course:

This course will focus on application of economic analysis in understanding of agricultural policies - with emphasis on cross-economic realities and concepts, measures and instruments of these policies. The course will further expose students how efficiencies and distributional impacts of agricultural policies are assessed.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Describe the principal agricultural policies used in developed countries and the economic forces behind their creation;
2. Interpret knowledge of agrarian policy in specific company or business settings;
3. Use appropriate methodological approaches and data sources to analyze commodity chain;
4. Understand key economic factors and relationships of agricultural development in a

qualitatively new conditions of agribusiness;

5. Understand the nature and form of government intervention in the agricultural sector, their effectiveness and relations; and
6. Have a better understanding of how to provide a systematic written analysis of agricultural policy consistent with the standards for conference presentations and journal publication

Course Content:

Lecture: Topics to be covered include: Policies related to global food security; Food safety (food contamination, animal diseases; agricultural productivity and research and development policy; Economics of zero tillage; Protection of agricultural land; Agriculture and economic development; Environmental payments; Biofuels; Genetically modified organisms; Climate change; Decoupling and land markets; Field and horticultural crops; Economics of agriculture (demand and supply, elasticities, and welfare analysis); Forces shaping agricultural policies; Rationale for government involvement in agriculture and food; Agricultural policy decision process; Geopolitical centers influencing global agricultural policies; World trade organization and impact on agriculture in developing countries; Trade; development, and farm policies at the national and international levels

Seminars: Topics to be covered include: Conservation of natural resources and protection of environment; Food and nutritional security; Diversification of agriculture; Management of inputs for greater efficiency; Development of rural infrastructure; Marketing and value-addition; Revitalization of cooperative institutions; Improving rural credit; Research

Mode of Delivery:

Lectures, take-home assignments, topical presentations and tutorials. The tutorials will be devoted to problem solving, data analysis, and case studies from the literature.

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment:

CATS	30%
Final Examination	70%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials:

1. T.L. Wheelen, and J.D. Hunger (2012) Strategic Management and Business Policy: Toward Global Sustainability. Pearson Education, Inc., NJ, USA
2. J. Swinnen (2018).The Political Economy of Agricultural and Food Policies. Palgrave, Macmillan, NY, USA
3. P. Pingali, and R.E. Evenson (2010) Agricultural Economics, Volume 4. Elsevier BV, Amsterdam, the Netherlands
4. L. Lipper, T. Sakuyama, R. Stringer, and D. Zilberman, Edition (2009) Payment for Environmental Services in Agricultural Landscape: Economic Policies and Poverty Reduction in Developing Countries. Food and Agriculture Organization of the United Nations; Springer Science Business Media LLC
5. M. Behnassi, S.A. Shahid, N. Mintz-Habib, Edition (2014) Science, Policy and Politics of Modern Agricultural System: Global Context to Local Dynamics of Sustainable Agriculture. Springer Science+Business Media Dordrecht, The Netherlands

Recommended Reference Materials

1. World Bank (2011) Strategic Environmental Assessment in Policy and Sector Reform: Conceptual Model and Operational Guidance. The International Bank for Reconstruction and Development | World Bank, Washington D.C., USA
2. F. Angelucci, J. Balié, H, Gourichon, A.M. Aparisi, and M. Witwer (2013) Monitoring and Analysing Food and Agricultural Policies in Africa. Food and Agricultural Organization of the United Nations Synthesis Report, Rome, Italy
3. M. Demeke, A. Spinelli, S. Croce, V. Pernechele, E. Stefanelli et al. (2014) Food and Agricultural Policy Decisions: Trends, Emerging Issues and Policy Alignments since the

2007/08 Food Security Crisis. Food and Agricultural Organization of the United Nations, Rome, Italy

4. H-J. Chang (2009) Rethinking Public Policy in Agriculture: Lessons from Distant and Recent History. Food and Agricultural Organization of the United Nations, Rome, Italy

Recommended Journals

1. Journal of Agricultural Policy. https://carijournals.org/shop/journal-agricultural-policy/
2. International Journal of Agricultural Policy and Research. https://journalissues.org/ijapr/
3. Food Policy. https://www.journals.elsevier.com/food-policy
4. American Journal of Agricultural Economics. https://onlinelibrary.wiley.com/journal/14678276
5. European Review of Agricultural Economics. https://academic.oup.com/erae
6. Journal of Agrarian Change. https://onlinelibrary.wiley.com/journal/14710366
7. Applied Economic Perspectives and Policy. https://onlinelibrary.wiley.com/journal/20405804
8. Global Food Security. https://www.journals.elsevier.com/global-food-security
9. Journal of Agriculture & Food Information. https://www.tandfonline.com/toc/wafi20/current

AAE 5117: International Agricultural Marketing Strategies

Purpose of the Course:

This course will introduce students to agricultural marketing, emphasizing applications of economic principles to marketing firms, functions, and problems. The course will also provide an overview of the role of agriculture in economies of developing and developed countries; and expose students to theories of international trade and why nations trade, trade policy, World Trade Organization (WTO) and negotiations.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. explain the essential global marketing functions of buying, selling, transporting, storing,

financing, standardizing, pricing, and risk bearing;

2. apply economic principles to the marketing of agricultural products;
3. identify alternatives in marketing of agricultural commodities/products; and
4. examine the structure of agricultural markets.

Course Content:

Topics to be covered include: Economic and marketing principles: introduction, definitions, and overview; Marketing systems in developing and developed countries; Marketing management process and marketing environment; Selling and sales management: Professional selling skills series; Marketing plans and management; Strategic management; Strategic management theories; Analyzing marketing activities; Sustainability and competitiveness of agribusiness firm; Selecting target markets: Customer-driven dtrategies; Developing marketing mix; Use of online and other resources for evaluating and developing strategic plans of agribusiness firms..

Mode of Delivery:

Lectures, and tutorials. The tutorials will be devoted to problem solving, data analysis, and case studies from the literature.

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment:

CATS	30%
Final Examination	70%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials:

1. G.W. Norton, J. Alwang, W.A. Masters (2010) Economics of Agricultural Development: World Food Systems and Resource Use. 2nd Edition. Routledge, NY, USA
2. L. Nijs (2014) The Handbook of Global Agricultural Markets: The Business and Finance

of Land, Water, and Soft Commodities. Palgrave Macmillan, NY, USA
3. H. Geman, Edition (2008) Risk Management in Commodity Markets: From Shipping to Agriculturals and Energy. John Wiley & Sons Ltd, West Sussex, England
4. F.B. Norwood, and J.L. Lusk (2008) Agricultural Marketing and Price Analysis. Pearson Education, Inc., NJ, USA
5. N.D. Chauvin, G. Porto, and F. Mulangu (2017) Agricultural Supply Chains, Growth and Poverty in Sub-Saharan Africa Market Structure, Farm Constraints and Grass-root Institutions. Springer-Verlag GmbH, Germany
6. B. Malcolm, J. Makeham, V. Wright (2005) The Farming Game Agricultural Management and Marketing. 2nd Edition. Cambridge University Press, Cambridge, UK

Recommended Reference Materials

1. Minnesota Institute for Sustainable Agriculture (2003) Building a Sustainable Business: A Guide to Developing a Business Plan for Farms and Rural Businesses. Sustainable Agriculture Research and Education (SARE) College Park, MD, USA
2. D. Colman, and T. Young (1989) Principles of Agricultural Economics: Markets and Prices in Less Developed Countries. Cambridge University Press, Cambridge, UK
3. H. Geman (2015) Agricultural Finance: From Crops to Land, Water and Infrastructure. John Wiley & Sons Ltd, West Sussex, England
4. A. Loconto, A.S. Poisot, and P. Santacoloma, Edition (2016) Innovative Markets for Sustainable Agriculture: How Innovations in Market Institutions Encourage Sustainable Agriculture in Developing Countries. FAO/INRA
5. A. Borin, and V. Di Nino (2012) The Role of Financial Investments in Agricultural Commodity Derivatives Markets. BANCA D'ITALIA, EUROSISTEMA, Italy

AAE 5118: Topics in Agricultural Management

Purpose of the Course:

This course is designed to help students gain an advanced understanding of agricultural management and its relationship to other disciplines through critical analysis of important paper

and contributions in this field. Students will practice synthesizing information and presenting findings to peers.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. analyze journal articles on areas of agricultural management;
2. Organize agricultural management concepts, data, and information;
3. Present research methods, analyses and research data and interpretations to a diverse audience
4. Evaluate personal presentation as well as presentation of others
5. Ask relevant and thoughtful questions

Course Content:

Topics to be covered include: Business management; Production economics; Agricultural Enterprise Management; Business informatics and empirical research; Business planning; Agricultural policy; Agricultural marketing; Project planning and management; Rural entrepreneurship

Mode of Delivery:

Each week students will be required to read a select set of articles from the current literature associated with agricultural management and be prepared to discuss the reading in class. In addition, at least once during the class students will be required to lead a weekly group discussion, provide a written critique of the reading, and provide an outline for the discussion.

Instructional Materials and/or Equipment:

Journal articles in related fields of agricultural management, PowerPoint presentations.

Course Assessment:

CATS	30%
Class Participation	10%
Final Examination	60%

Total 100%

The passing grade shall be **C = 50%** in each course taken and examined

Recommended Journals

1. Annual Review of Resource Economics. https://www.annualreviews.org/journal/resource
2. Journal of Applied Farm Economics. https://docs.lib.purdue.edu/jafe/
3. AFBM Journal. https://science.csu.edu.au/afbm/archive/afbm-journal
4. Japanese Journal of Farm Management. https://www.jstage.jst.go.jp/browse/fmsj
5. International Journal of Sustainable Agriculture Management and Informatics. https://www.inderscience.com/jhome.php?jcode=ijsami
6. International Journal of Production Economics. https://www.journals.elsevier.com/international-journal-of-production-economics
7. International Journal of Production Research. https://www.tandfonline.com/toc/tprs20/current
8. International Journal of Operations and Production Management. https://www.emeraldgrouppublishing.com/journal/ijopm?id=ijopm
9. Managerial and Decision Economics. https://onlinelibrary.wiley.com/journal/10991468
10. Managerial Economics. https://journals.indexcopernicus.com/search/details?id=24724
11. Journal of Production Research and Management. http://stmjournals.com/Journal-of-Production-Research-and-Management.html
12. Applied Economic Policies and Perspective. https://onlinelibrary.wiley.com/journal/20405804
13. Journal of Agricultural Policy. https://carijournals.org/shop/journal-agricultural-policy/
14. International Journal of Agricultural Policy and Research. https://journalissues.org/ijapr/
15. Food Policy. https://www.journals.elsevier.com/food-policy
16. American Journal of Agricultural Economics. https://onlinelibrary.wiley.com/journal/14678276
17. European Review of Agricultural Economics. https://academic.oup.com/erae
18. Journal of Agrarian Change. https://onlinelibrary.wiley.com/journal/14710366
19. Applied Economic Perspectives and Policy. https://onlinelibrary.wiley.com/journal/20405804

20. Global Food Security. https://www.journals.elsevier.com/global-food-security
21. Journal of Agriculture & Food Information. https://www.tandfonline.com/toc/wafi20/current

AAE 5119: Project Planning and Management

Purpose of the Course:

The aim of this course is to introduce students to practices and approaches for successful planning, designing, management, and evaluation of projects.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. identify activities involved in project planning, monitoring and evaluation;
2. describe procedures of situational and stakeholder analysis;
3. outline the process of preparing a monitoring and evaluation procedure;
4. prepare a detailed project proposal with clear aims and objectives and realistic methods of achieving them;
5. write and present proposals for funding from different sources; and
6. create systems for monitoring and evaluation of projects.

Course Content:

Topics to be covered will include; Critical thinking; Inter alia economic planning; Resource mobilization; Networking; Application of computer technologies in project planning and evaluation; Project management methods; Project organization; Responsibilities and roles within a project group; Methods for follow-up and evaluation of projects; communication skills

Mode of Delivery:

Class meetings will be lectures and discussions. A central element of the course is that students will be required to develop their own project plans in groups. The projects should include all necessary components such as a project description, specification of target group, possible financiers, time plan, and budget. Therefore, consistent attendance is expected from students

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment:

CATS	30%
Class Participation	10%
Final Examination	60%
Total	100%

The passing grade shall be **C = 50%** in each course taken and examined

Core Reading Materials for this Course

22. P. Hopkin (2017) Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management. 4th Edition. The Institute of Risk Management, NY, USA
23. M.S. Dobson (2015) Successful Project Management: How to Complete Projects on Time, on Budget, and on Target. 4th Edition. American Management Association
24. J.P. Lewis (2000) The Project Manager's Desk Reference: A Comprehensive Guide to Project Planning, Scheduling, Evaluation, and Systems. 2nd Edition. McGraw-Hill Companies Inc., MA, USA
25. H. Kerzner (2017) Project Management: A Systems Approach to Planning, Scheduling, and Controlling. 12th Edition. John Wiley & Sons, Inc., NJ, USA
26. D.I. Cleland, and R. Gareis, Edition (2006) Global Project Management Handbook: Planning, Organizing, and Controlling International Projects. 2nd Edition. The McGraw-Hill Companies, Inc., NY, USA
27. R. Netwon (2006) Project Management Step by Step: How to Plan and Manage a Highly Successful Project. 2nd Edition. Pearson, NY, USA

Recommended Reference Materials:

1. K. Singh, D. Chandurkar, and V. Dutt (2017) A Practitioners' Manual on Monitoring and Evaluation of Development Projects. Cambridge Scholars Publishing, Newcastle upon

Tyne, UK

2. M. Carrier, S. Legoff, M. Leduc, G. Ceralli, G. Lippolis et al. (2018) A Practical Guide - Project Planning, Monitoring and Evaluation: Improving the Quality, Learning and Accountability of Humanity & Inclusion's Interventions. Humanity & Inclusion, Lyon, France

AAE 5120: Agripreneurship

Purpose of the Course:

This course will offer students a better understanding of Agricultural enterprises and its various aspects. Students will acquire knowledge and practical skills of turning Agribusiness ideas into versatile business ventures and in the process revitalize the sector and make it more attractive and profitable venture.

The course will further help instill Agripreneurship abilities among students.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Understand the imbalances within Agri-food value chain constraints and opportunities along the chain
2. strengthen their capacity to generate income and wealth creation;
3. strengthen their competence in the area of market access and commercialization of the chain activities
4. identify pro-poor, smallholder inclusive and/or gender-friendly agribusiness development opportunities;
5. analyze development polices addressing Agricultural labor markets and population change;
6. specify the need for Agribusiness technology interventions and its importance in rural areas; and
7. apply the tools that support Private/Public sector driven portfolios in Agri-food value

chains

Course Content:

Topics to be covered include: Agripreneurship - Meaning, Characteristics and Objectives; Concept of Agripreneurship; Steps in Agripreneurial Journey, Discovery, Concept Development, Resourcing Actualization and Harvesting; Support and Incentives for Agripreneurship; Factors influencing Agripreneurship; Possible areas of Agripreneurship Development in Agriculture; Strategies for Agripreneurship business incubation and development; Agribusiness Ideas: Introduction, Definitions, Features, Needs.; Agribusiness Constraints Analysis Matrix; Agribusiness formulation and implementation; Essays, Research Papers and Articles on Agripreneurship.

Mode of Delivery:

The teaching and learning approaches shall combine face to face class room lectures, tutorials, and take-home assignments as well as group discussions.

Instructional Materials and/or Equipment:

Notes prepared by lecturer, power point slides, text books.

Course Assessment:

CATS	30%
Final Examination	70%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials:

1. Bairwa S. L., Lakra K.,Kushwaha S., Meena L.K., AND Kumar P (2014) Agripreneurship Development as a tool to upliftment of Agriculture, International Journal of Scientific and Research Publications, Vol.4,No.3,pp.1-4
2. C. Williams (2018) Small Town Big Money: Entrepreneurship and Opportunity in Today's Small Town

3. D. N. Madhushree, Akansha Gupta, Pprashant Saxena, Apoorva Thaku, and Himanshu

Balhara. Agripreneurship. 2018. Amity Institute of Organic Agriculture.

4. G.A. Alsos, S. Carter, E. Ljunggren, and F. Welter (2011) Handbook of Research on Entrepreneurship in Agriculture and Rural Development. Edward Elgar Publishing Inc., MA, USA
5. J.V. Andrei, J. Subic, A. Grubor, and D. Privitera (2020) Handbook of Research on Agricultural Policy, Rural Development, and Entrepreneurship in Contemporary Economies (Advances in Environmental Engineering and Green Technologies). 1st Edition. IGI Global, PA, USA
6. Metha S.S.(2014) Institute for Entrepreneurship Development Amongst Farmers-Especially Small and Marginal Land Holders, Global Journal for Research Analysis, Vol.3, No.9, pp.132-134
7. Singh A.P. (2012) Strategies for Developing Agripreneurship among Farming Community in Uttar Pradesh, Journal of Asia Entrepreneurship and Sustainability Vol.8, No.1pp. 81-102. https://www.eajournals.org/
8. Singh A.P. (2013) Factors Influencing Entrepreneurship among Farming Community in Uttar Pradesh, International Refereed Research Journal Vol.4, No.3, pp.114-121. https://www.eajournals.org/
9. Sunday C. Eze1 and Vera Chinedu-Eze. November 2016. Agripreneurship Curriculum Development in Nigerian Higher Institutions. International Journal of Small Business and Entrepreneurship Research Vol.4, No.6, pp.53-66. https://www.eajournals.org/
10. Tripathi R. and Agarwal S.(2015) Rural Development through Agripreneurship : A study of Farmers in Uttar Pradesh, Global Journal of Advanced Research, Vol.2, No.2, pp.534-542. https://www.eajournals.org/
11. Uneze C. (2013) Adopting Agripreneurship Education for Nigeria's Quest for Food Security in Vision 20:2020, Greener journal of Educational Research, Vo.3,No.9,pp.411-415. https://www.eajournals.org/

Recommended Reference Materials

1. E.L. Edgcomb; J.A. Klein, and D. Black (2008) Revitalizing Rural Economies Through Entrepreneurship Development Systems. The Aspen Institute
2. R. Best, S. Ferris, and C. Wheatley, Edition (2015) A Guide to Strengthening Business Development Services in Rural Areas. Catholic Relief Services, MD, USA
3. C. Neoji, A.K. Bhandari, and S. Ghosh, Edition (2017) Women's Entrepreneurship and

Microfinance. Springer Nature Singapore Pte Ltd

4. The Swedish International Agricultural Network Initiative (SIANI). 2017. Agripreneurship Alliance: Growing the next generation of Agripreneurs in Africa
5. https://www.theagripreneur.org/
6. Young African Leaders Initiative.2010. Agribusiness is Smart Business YALI Goes Green, Agripreneurship: A Path to the Future. https://yali.state.gov/ag/

Year 2 Semesters 1

AAE 5211: Thesis I

Purpose of the Course:

This course is designed to develop and enhance students' knowledge and skills to plan independent research and to communicate this in a research proposal and orally to the academic community.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Develop a feasible and realistic research proposal.
2. Apply relevant ethical principles in research proposal development.

Course Content:

In preparation of the thesis, students will be guided on how to develop a research proposal outlining all aspects of the planned work. The proposals will be discussed in research seminars. The proposal must be approved by the supervisors before planned research project for the thesis can be undertaken. The first part of the course focuses on how to organize a research project, including developing the research question, reviewing and synthesizing prior research and writing, and understanding the elements of a research proposal. Develop an appropriate and feasible research design, considering the merits of alternative methods. Students will draft sections and eventually a full proposal with ongoing review by advisors and the course instructor. Students should expect to work intensively with their advisors during this period.

Mode of Delivery:

The student will work with the supervisors to develop the proposal on an agreed topic, theme and title as necessary. The student will maintain at least a two weekly visit and discussion with the supervisor.

Instructional Materials and/or Equipment:

The student will use the available referral material and other research materials availed on campus, Internet and other sources as directed by the supervisors.

Course Assessment:

No marks or grades will be awarded for thesis proposal. The proposal writing stage will be reported as satisfactory or not satisfactory. The supervisors will consult with each other before advising the student on the performance.

Core Reading Materials:

1. Science and Technology Facilities Council (2009) "Research Grants Handbook", 09 October 2009. http://www.scitech.ac.uk/rgh/PDFs/rghAll.pdf
2. MLA (2008). Style Manual and Guide to Scholarly Publishing, third edition. Published: ISBN: 9780873522977 (hardcover). ISBN: 9780873522984
3. Reich, J., Tingley, D., Leder-Luis, J., Roberts, M. E., and Stewart, B. M. (2015). Computer assisted reading and discovery for student generated text in massive open online courses. Journal of Learning Analytics.

Year 2 Semester 2

AAE 5211: Thesis II

Purpose of the Course:

This course is designed to enhance students' capacity to conduct independent research and to communicate this in a research thesis and orally to the target community.

Expected Learning Outcomes of the Course:

Upon completion of the course the students should be able to:

1. Apply relevant designs for the process of research in Agricultural Management.
2. Conduct independent research for contribution to the body of knowledge in Agricultural Management.
3. Identify appropriate skills to effectively communicate research to target audience.

Course Content:

This course offers a capstone experience in which students conduct a research project and produce a thesis in a field related to their area of study. With guidance from an academic mentor, the student will conduct primary and secondary research which includes an academic literature search, research design, data analysis and discussion. The course allows the student to undertake advanced level research and produce a substantial piece of writing which advances knowledge in the selected field of research.

Mode of Delivery:

The student will work with the supervisors to develop the proposal on an agreed topic, theme and title as necessary. The student will maintain at least a two weekly visit and discussion with the advisor.

Instructional Materials and/or Equipment:

The student will use the available referral material and other research materials availed on campus, Internet and other sources as directed by the supervisors.

Course Assessment:

No marks or grades will be awarded for thesis proposal.

The proposal writing stage will be reported as satisfactory or not satisfactory. The supervisors will use consult with each other before advising the student on the performance observed.

Core Reading Materials:

1. Committee on the Conduct of Science, National Academy of Sciences. (1995). On Being a Scientist. Washington, D.C.: National Academy Press. Also downloadable in pieces at http://books.nap.edu/books/0309051967/html/index.html

2. BBSRC (2009) "BBSRC Research Grants: The Guide", Research, Innovation and Skills Directorate BBSRC August 2009. http://www.bbsrc.ac.uk/funding/apply/grants_guide.pdf
3. Science and Technology Facilities Council (2009) "Research Grants Handbook", 09 October 2009. http://www.scitech.ac.uk/rgh/PDFs/rghAll.pdf

4.0 APPENDIX

4.1 Appendix I: Facilities

Item		Number	Capacity in (sq. m) and no. of students	Usage	
				Specific to Department	Shared
Conference Halls		1	100		√
Lecture Room/Lecture Theatres		16	50	4	
Lecture Theatre	Auditorium	1	1000		√
	Assembly Hall	1	800		
Lecturer's Offices		20	20	4	
Postgraduate Research Laboratories		1	20		√
Library		1	400		√
Postgraduate Seminar Room		1	15		√
Computer Lab		2	40		2
Studios		1	10		√
Examination rooms		2	5		√
Admissions Office		1	7		√

Academic leaders offices	2	4	√	
Insect repository	1	20	√	
Insect farm	1			
Board of postgraduate office	3	6		√
Internet Access points	8	800		√

4.2 Appendix II: Equipment and Teaching Materials

Item	**Type**	**Number**	**Capacity**	**Usage**	
				Specific to Department	**Shared**
Desk Top Computers (PCS)	HP	480	60	50	430
Laptops/Note Books	HP	22		2	20
Projectors Power Point-Projectors	Epson, Sony, Benq	22		3	19
Smart boards	Smart	1		0	√
Scanner	HP, Kyocera	10			10
Printers	HP, Kyocera	80		2	78
Computer Software	Win 7, 8, 10				√
	Jaws				√
	Ms Office				√
	ARC GIS software				√
	ERDAS				√

Others(specify)	Wireless network	8	30 bandwidth		√
	LAN	8			√

4.3 Appendix III: Core-Texts and Journals

List of core-texts and journals, which should encompass subject areas, number of titles and volumes for both print and electronic materials

1. AAE 5111 BUSINESS MANAGEMENT

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	A Manager's Guide to Financial Analysis: Powerful Tools for Analyzing the Numbers and Making the Best Decisions for Your Business. 6th Edition. 2015. American Management Association	E.H. Sherman		Available online: www.pdfdrive.com
2.	Business Analytics for Managers: Taking Business Intelligence Beyond Reporting. 2nd Edition. 2017. John Wiley & Sons, NJ, USA	G.H. Laursen, and J. Thorlund		Available online: www.pdfdrive.com
3.	Business Society: Ethics and Stakeholder Management.	A.B. Carroll, and A.K. Buchholtz		Available online: www.pdfdrive.com

	2009. South-Western, OH, USA			
4.	Business Process Management: Concepts, Languages, Architectures. 2nd Edition. 2012. Springer-Verlag Berlin Heidelberg, Germany	M. Weske		Available online: www.pdfdrive.com
5.	Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management. 4th Edition. 2017. The Institute of Risk Management, NY, USA	P. Hopkin		Available online: www.pdfdrive.com
6.	Business Process Management: Practical Guidelines to Successful Implementations. 1st Edition. 2006. Butterworth-Heinemann, MA, USA	J. Jeston, and J. Nelis		Available online: www.pdfdrive.com

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Delivering Business Analytics: Practical Guidelines for Best Practice.	E. Stubbs		Available online: www.pdfdrive.com

	2013. John Wiley & Sons Inc., NJ, USA			
2.	Essentials of Entrepreneurship and Small Business Management. 6th Edition. 2011. Pearson Publishing, Inc., NJ, USA	N.M. Scarborough		Available online: www.pdfdrive.com
3.	Strategic Management and Business Policy: Toward Global Sustainability. 13th Edition. 2012. Pearson Education, Inc., NJ, USA	T.L. Wheelen, and J.D. Hunger		Available online: www.pdfdrive.com

2. AAE 5112 PRODUCTION ECONOMICS

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Economics of Agricultural Development: World Food Systems and Resource Use, 2nd Edition. 2010. Routledge, NY, USA	G.W. Norton, J. Alwang, and W.A. Masters		Available online: www.pdfdrive.com
2.	Handbooks in Agricultural Economics. Agricultural Economics. Volume 4. 2010. North-Holland, Amsterdam, The Netherlands	P.L. Pingali, and R.E. Evenson		Available online: www.pdfdrive.com
3.	Mathematical Programming for Economic Analysis in	P.B.R. Hezell, and R.D. Norton		Available online: www.pdfdrive.com

	Agriculture. 1986. Macmillan Publishing Co., NY, USA			
4.	Principles of Agricultural Economics. 2013. Routledge, NY, USA	A. Barkley, and P.W. Barkley		Available online: www.pdfdrive.com
5.	Science, Policy and Politics of Modern Agricultural System. Global Context to Local Dynamics of Sustainable Agriculture. 2014. Springer Dordrecht, The Netherlands	M. Behnassi, S.A. Shahid, and N. Mintz-Habib, Edition		Available online: www.pdfdrive.com
6.	Agricultural Finance: From Crops to Land, Water and Infrastructure. 2015. John Wiley & Sons Ltd, West Sussex, England	H. Geman		Available online: www.pdfdrive.com

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Principles of Agricultural Economics: Markets and Prices in Less Developed Countries. 1989. Cambridge University Press, Cambridge, UK	D. Colman, and T. Young		Available online: www.pdfdrive.com
2.	Handbook of Agricultural Economics. Volume 1A. 2001. Agricultural	B.L. Gardner, and G.C. Rausser		Available online: www.pdfdrive.com

	Production. Elsevier Science B.V.			
3.	Handbook of Agricultural Economics. Volume 3. Agricultural Development: Farmers, Farm Production and Farm Markets. 2007. North-Holland, Amsterdam, The Netherlands	R. Evenson, and P. Pingali, Edition		Available online: www.pdfdrive.com
4.	Mathematics for Economics and Finance. 2011. Routledge, NY, USA	M. Harrison, and P. Waldron		Available online: www.pdfdrive.com

Recommended Journals

No.	Title	Remarks
1.	International Journal of Production Economics. https://www.journals.elsevier.com/international-journal-of-production-economics	
2.	International Journal of Production Research. https://www.tandfonline.com/toc/tprs20/current	
3.	International Journal of Operations and Production Management. https://www.emeraldgrouppublishing.com/journal/ijopm?id=ijopm	
4.	Managerial and Decision Economics. https://onlinelibrary.wiley.com/journal/10991468	
5.	Managerial Economics. https://journals.indexcopernicus.com/search/details?id=24724	

5.	Journal of Production Research and Management. http://stmjournals.com/Journal-of-Production-Research-and-Management.html	
6.	Applied Economic Policies and Perspective. https://onlinelibrary.wiley.com/journal/20405804	

3. AAE 5113 AGRICULTURAL ENTERPRISE MANAGEMENT

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Enterprise Risk Management. 2010. John Wiley & Sons, Inc., NJ, USA	J. Fraser, and B.J. Simkins		Available online: www.pdfdrive.com
2.	Behavioral Finance and Wealth Management: How to Build Optimal Portfolios that Account for Investor Biases. 2006.	M.M. Pompian		Available online www.pdfdrive.com
3.	IT Auditing and Application Controls for Small and Mid-Sized Enterprises: Revenue, Expenditure, Inventory, Payroll, and More. 2013. John Wiley & Sons, Inc., NJ, USA	J. Wood, W. Brown, and H. Howe		Available online www.pdfdrive.com
4.	Multinational Enterprise and Economic Analysis. 3rd Edition. 2007. Cambridge	R.E. Caves		Available online www.pdfdrive.com

	University Press, Cambridge, UK			
5.	Small Business Enterprise: An Economic Analysis. 1993. Routledge, NY, USA	G.C. Reid		Available online www.pdfdrive.com
6.	The Economics of Social Responsibility: The World of Social Enterprises. 2010. Routledge, NY, USA	L. Becchetti, and C. Borzaga, Edition		Available online www.pdfdrive.com
7.	The Economics of Business Enterprise: An Introduction to Economic Organisation and the Theory of the Firm. International Student Edition. 2002. Edward Elgar Publishing, Inc., MA, USA	M. Ricketts		Available online www.pdfdrive.com

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Project Management the Agile Way: Making it Work in the Enterprise. 2nd Edition. 2016. J. Ross Publishing, USA	J.C. Goodpasture		Available online www.pdfdrive.com
2.	Business Framework for the Governance and Management of Enterprise IT. 2012. ASIACA, IL, USA	COBIT		Available online www.pdfdrive.com

3.	Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management. 2017. The Institute of Risk Management, NY, USA	P. Hopkin		Available online www.pdfdrive.com
4.	Strategic Management. Professional Competent Course Study Material. 2008. Sahitya Bhawan Publications, India	The Institute of Chartered Accountants of India		Available online www.pdfdrive.com
5.	Enterprise Information Systems: Concepts, Methodologies, Tools and Applications. 2011. IGI Global, NY, USA	Information Resources Management Association USA		
6.	Social Entrepreneurship in Non-Profit and Profit Sectors: Theoretical and Empirical Perspectives. 2017. Springer International Publishing AG, Switzerland	M. Peris-Ortiz, F. Teulon, and D. Bonet-Fernandez, Edition		

4. AAE 5114 BUSINESS INFORMATICS AND EMPIRICAL RESEARCH

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Economic Model Predictive Control: Theory, Formulations and Chemical	M. Ellis, J. Liu, and P.D. Chrisofides		Available online www.pdfdrive.com

	Process Applications. 2017. Springer International Publishing. Switzerland			
2.	Cooperative Work and Coordinative Practices: Contributions to the Conceptual Foundations of Computer-Supported Cooperative Work (CSCW). 2011. Springer-Verlag London Limited	K. Schmidt		Available online www.pdfdrive.com
3.	Economics of Database-Assisted Spectrum Sharing. 2016. Springer International Publishing, Switzerland	Y. Luo, L. Gao, and J. Huang		Available online www.pdfdrive.com
4.	Entrepreneurship and Innovations in E-Business: An Integrative Perspective. 2006. Idea Group Inc., PA, USA	F. Zhao		Available online www.pdfdrive.com
5.	Information Assurance: Managing Organizational IT Security Risks. 2002. Elsevier Science, USA	J.G. Boyce, and D.W. Jennings		Available online www.pdfdrive.com
6.	Information Technology: Project Management. Revised 6th Edition. 2011. Course Technology, Cengage Learning, MA, USA	K. Schwalbe		Available online www.pdfdrive.com

7.	Innovative Approaches Towards Low Carbon Economics: Regional Development Cybernetics. 2014. Springer-Verlag Berlin Heidelberg, Germany	J. Xu, L. Yao, and Y. Lu		Available online: www.pdfdrive.com
8.	Accounting Information Systems. 7th Edition. 2011. Cengage Learning, OH, USA	J.A. Hall		Available online: www.pdfdrive.com
9.	The Data Industry: The Business and Economics of Information and Big Data. 2016. John Wiley & Sons Inc., NJ, USA	C. Tang		Available online: www.pdfdrive.com
10.	The Oxford Handbook of Empirical Legal Research. 2010. Oxford University Press Inc., NY, USA	P. Cane, and H. Kritzer, Edition		Available online: www.pdfdrive.com
11	Mathematics for Economics and Finance. 2011. Routledge, NY, USA	M. Harrison, and P. Waldron		Available online: www.pdfdrive.com

Recommended Reading Reference(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Advanced Macroeconomics. 4th Edition. 2012. McGraw-Hill, NY, USA	D. Romer		Available online www.pdfdrive.com

2.	Handbook of Collective Intelligence. 2015. MIT Press, MA, USA	T.W. Malone, and M.S. Bernstein, Edition		Available online www.pdfdrive.com
3.	Computer Systems Architecture. 3rd Edition. 2014.	M. Mano		Available online www.pdfdrive.com
4.	Data Analysis and Graphics Using R – an Example-Based Approach. 3rd Edition. 2003. Cambridge University Press, Cambridge, UK	J. Maindonald, and W.J. Braun		Available online: www.pdfdrive.com
5.	Enterprise Information Systems: Concepts, Methodologies, Tools and Applications. 2011. IGI Global, NY, USA	Information Resources Management Association USA		Available online: www.pdfdrive.com
6.	The Essentials of Computer Organization and Architecture. 2003. Johns and Bartlett Publishers Inc., MA, USA	L. Null, and J. Lobur		Available online: www.pdfdrive.com
7.	Macroeconomics Simplified: Understanding Keynesian and Neoclassical Macroeconomic Systems. 2014. SAGE Publications Inc., CA, USA	N. Nattrass, and G.V. Varma		Available online: www.pdfdrive.com

5. AAE 5115 BUSINESS PLANNING

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Concepts in Enterprise Resource Planning. 4th Edition. 2013. Course Technology, Cengage Learning, MA, USA	E.F. Monk, and B.J. Wagner		Available online: www.pdfdrive.com
2.	Enterprise Analytics: Optimize Performance, Process, and Decisions Through Big Data. 2013. International Institute for Analytics, NJ, USA	T.H. Davenport		Available online: www.pdfdrive.com
3.	Enterprise Planning and Development: Small Business Start-up, Survival and Development. 2006. Elsevier Ltd., MA, USA	D. Butler		Available online: www.pdfdrive.com
4.	Planning Production and Inventories in the Extended Enterprise: A State-of-the-Art Handbook, Volume 2. 2011. Springer Science+Business Media, LLC, NY, USA	K.G. Kempf, P. Keskinocak, and R. Uzsoy, Edition		Available online: www.pdfdrive.com
5.	The Enterprise Big Data Lake: Delivering the Promise of Big Data and Data Science. 2019. O'Reilly Media, Inc., CA, USA	A. Gorelik		Available online: www.pdfdrive.com

6.	The agile consultant: Guiding clients to enterprise agility. 2016. Springer Science+Business Media, NY, USA	R. Friedman		Available online: www.pdfdrive.com

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Designing Urban Agriculture: A Complete Guide to the Planning, Design, Construction, Maintenance, and Management of Edible Landscapes. 2013. John Wiley & Sons, Inc., NJ, USA	A. Philips		Available online: www.pdfdrive.com
2.	Enterprise Resource Planning Fundamentals of Design and Implementation. 2014. Springer International Publishing, Switzerland	K. Ganesh, S. Mohapatra, S.P. Anbuudayasankar, and P. Sivakumar		Available online: www.pdfdrive.com
3.	Financial Modeling for Business Owners and Entrepreneurs: Developing Excel Models to Raise Capital, Increase Cash Flow, Improve Operations, Plan	T.Y. Sawyer		Available online: www.pdfdrive.com

	Projects, and Make Decisions. 2014. APRESS			

6. AAE 5116 AGRICULTURAL POLICY

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Strategic Management and Business Policy: Toward Global Sustainability. 2012. Pearson Education, Inc., NJ, USA	T.L. Wheelen, and J.D. Hunger		Available online www.pdfdrive.com
2.	The Political Economy of Agricultural and Food Policies. 2018. Palgrave, Macmillan, NY, USA	J. Swinnen		Available online www.pdfdrive.com
3.	Agricultural Economics, Volume 4. 2010. Elsevier BV, Amsterdam, The Netherlands	P. Pingali, and R.E. Evenson		Available online www.pdfdrive.com
4.	Payment for Environmental Services in Agricultural Landscape: Economic Policies and Poverty Reduction in Developing Countries. 2009. Food and Agriculture Organization of the United Nations; Springer ScienceþBusiness Media LLC	L. Lipper, T. Sakuyama, R. Stringer, and D. Zilberman, Edition		Available online www.pdfdrive.com

5.	Science, Policy and Politics of Modern Agricultural System: Global Context to Local Dynamics of Sustainable Agriculture. 2014. Springer Science+Business Media Dordrecht, The Netherlands	M. Behnassi, S.A. Shahid, N. Mintz-Habib, Edition		Available online www.pdfdrive.com

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Strategic Environmental Assessment in Policy and Sector Reform: Conceptual Model and Operational Guidance. 2011. The International Bank for Reconstruction and Development | World Bank, Washington D.C., USA	World Bank		Available online www.pdfdrive.com
2.	Monitoring and Analysing Food and Agricultural Policies in Africa. 2013. Food and Agricultural Organization of the United Nations Synthesis Report, Rome, Italy	F. Angelucci, J. Balié, H, Gourichon, A.M. Aparisi, and M. Witwer		Available online www.pdfdrive.com
3.	Food and Agricultural Policy Decisions: Trends, Emerging	M. Demeke, A. Spinelli, S. Croce,		Available online www.pdfdrive.com

	Issues and Policy Alignments since the 2007/08 Food Security Crisis. 2014. Food and Agricultural Organization of the United Nations, Rome, Italy	V. Pernechele, E. Stefanelli et al.		
4.	Rethinking Public Policy in Agriculture: Lessons from Distant and Recent History. 2009. Food and Agricultural Organization of the United Nations, Rome, Italy	H-J. Chang		Available online www.pdfdrive.com

Recommended Journals

No.	Title	Remarks
1.	Journal of Agricultural Policy. https://carijournals.org/shop/journal-agricultural-policy/	
2.	International Journal of Agricultural Policy and Research. https://journalissues.org/ijapr/	
3.	Food Policy. https://www.journals.elsevier.com/food-policy	
4.	American Journal of Agricultural Economics. https://onlinelibrary.wiley.com/journal/14678276	
5.	European Review of Agricultural Economics. https://academic.oup.com/erae	
5.	Journal of Agrarian Change. https://onlinelibrary.wiley.com/journal/14710366	
6.	Applied Economic Perspectives and Policy. https://onlinelibrary.wiley.com/journal/20405804	

7.	Global Food Security. https://www.journals.elsevier.com/global-food-security	
8.	Journal of Agriculture & Food Information. https://www.tandfonline.com/toc/wafi20/current	

7. AAE 5117 INTERNATIONAL AGRICULTURAL MARKETING STRATEGIES

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Economics of Agricultural Development: World Food Systems and Resource Use. 2nd Edition. 2010. Routledge, NY, USA	G.W. Norton, J. Alwang, and W.A. Masters		Available online www.pdfdrive.com
2.	The Handbook of Global Agricultural Markets: The Business and Finance of Land, Water, and Soft Commodities. 2014. Palgrave Macmillan, NY, USA	L. Nijs		Available online www.pdfdrive.com
3.	Risk Management in Commodity Markets: From Shipping to Agriculturals and Energy. 2008. John Wiley & Sons Ltd, West Sussex, England	H. Geman, Edition		Available online www.pdfdrive.com

4.	Agricultural Marketing and Price Analysis. 2008. Pearson Education, Inc., NJ, USA	F.B. Norwood, and J.L. Lusk		Available online www.pdfdrive.com
5.	Agricultural Supply Chains, Growth and Poverty in Sub-Saharan Africa Market Structure, Farm Constraints and Grass-root Institutions. 2017. Springer-Verlag GmbH, Germany	N.D. Chauvin, G. Porto, and F. Mulangu		Available online www.pdfdrive.com
6.	The Farming Game Agricultural Management and Marketing. 2nd Edition. 2005. Cambridge University Press, Cambridge, UK	B. Malcolm, J. Makeham, V. Wright		Available online www.pdfdrive.com

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Principles of Agricultural Economics: Markets and Prices in Less Developed Countries. 1989. Cambridge University Press, Cambridge, UK	D. Colman, and T. Young		Available online www.pdfdrive.com
2.	Agricultural Finance: From Crops to Land, Water and Infrastructure. 2015. John Wiley & Sons Ltd, West	H. Geman		Available online www.pdfdrive.com

	Sussex, England			
3.	Innovative Markets for Sustainable Agriculture: How Innovations in Market Institutions Encourage Sustainable Agriculture in Developing Countries. 2016. FAO/INRA	A. Loconto, A.S. Poisot, and P. Santacoloma, Edition		Available online www.pdfdrive.com
4.	The Role of Financial Investments in Agricultural Commodity Derivatives Markets. 2012. BANCA D'ITALIA, EUROSISTEMA, Italy	A. Borin, and V. Di Nino		Available online www.pdfdrive.com
5.	Building a Sustainable Business: A Guide to Developing a Business Plan for Farms and Rural Businesses. 2003. Sustainable Agriculture Research and Education (SARE) College Park, MD, USA	Minnesota Institute for Sustainable Agriculture		Available online www.pdfdrive.com

8. AAE 5118 TOPICS IN AGRICULTURAL MANAGEMENT

9. Recommended Journals

No.	Title	Remarks

1.	Annual Review of Resource Economics. https://www.annualreviews.org/journal/resource	
2.	Journal of Applied Farm Economics. https://docs.lib.purdue.edu/jafe/	
3.	AFBM Journal. https://science.csu.edu.au/afbm/archive/afbm-journal	
4.	Japanese Journal of Farm Management. https://www.jstage.jst.go.jp/browse/fmsj	
5.	International Journal of Sustainable Agriculture Management and Informatics. https://www.inderscience.com/jhome.php?jcode=ijsami	
6.	International Journal of Production Economics. https://www.journals.elsevier.com/international-journal-of-production-economics	
7.	International Journal of Production Research. https://www.tandfonline.com/toc/tprs20/current	
8.	International Journal of Operations and Production Management. https://www.emeraldgrouppublishing.com/journal/ijopm?id=ijopm	
9.	Managerial and Decision Economics. https://onlinelibrary.wiley.com/journal/10991468	
10.	Managerial Economics. https://journals.indexcopernicus.com/search/details?id=24724	
11.	Journal of Production Research and Management. http://stmjournals.com/Journal-of-Production-Research-and-Management.html	
12.	Applied Economic Policies and Perspective. https://onlinelibrary.wiley.com/journal/20405804	

13.	Journal of Agricultural Policy. https://carijournals.org/shop/journal-agricultural-policy/	
14.	International Journal of Agricultural Policy and Research. https://journalissues.org/ijapr/	
15.	Food Policy. https://www.journals.elsevier.com/food-policy	
16.	American Journal of Agricultural Economics. https://onlinelibrary.wiley.com/journal/14678276	
17.	European Review of Agricultural Economics. https://academic.oup.com/erae	
18.	Journal of Agrarian Change. https://onlinelibrary.wiley.com/journal/14710366	
19.	Applied Economic Perspectives and Policy. https://onlinelibrary.wiley.com/journal/20405804	
20.	Global Food Security. https://www.journals.elsevier.com/global-food-security	
21.	Journal of Agriculture & Food Information. https://www.tandfonline.com/toc/wafi20/current	

10. AAE 5119 PROJECT PLANNING AND MANAGEMENT

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management. 4th Edition. 2017. The Institute	P. Hopkin		Available online www.pdfdrive.com

	of Risk Management, NY, USA			
2.	Successful Project Management: How to Complete Projects on Time, on Budget, and on Target. 4th Edition. 2015. American Management Association	M.S. Dobson		Available online www.pdfdrive.com
3.	The Project Manager's Desk Reference: A Comprehensive Guide to Project Planning, Scheduling, Evaluation, and Systems. 2nd Edition. 2000. McGraw-Hill Companies Inc., MA, USA	J.P. Lewis		Available online www.pdfdrive.com
4.	Project Management: A Systems Approach to Planning, Scheduling, and Controlling. 12th Edition. 2017. John Wiley & Sons, Inc., NJ, USA	H. Kerzner		Available online www.pdfdrive.com
5.	Global Project Management Handbook: Planning, Organizing, and Controlling International Projects. 2nd Edition. 2006. The McGraw-Hill Companies, Inc., NY, USA	D.I. Cleland, and R. Gareis, Edition		Available online www.pdfdrive.com

6.	Project Management Step by Step: How to Plan and Manage a Highly Successful Project. 2nd Edition. 2006. Pearson, NY, USA	R. Netwon		Available online www.pdfdrive.com

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	A Practitioners' Manual on Monitoring and Evaluation of Development Projects. 2017. Cambridge Scholars Publishing, Newcastle upon Tyne, UK	K. Singh, D. Chandurkar, and V. Dutt		Available online www.pdfdrive.com
2.	A Practical Guide - Project Planning, Monitoring and Evaluation: Improving the Quality, Learning and Accountability of Humanity & Inclusion's Interventions. 2018. Humanity & Inclusion, Lyon, France	M. Carrier, S. Legoff, M. Leduc, G. Ceralli, G. Lippolis et al.		Available online www.pdfdrive.com

11. AAE 5120 AGRIPRENEURSHIP

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Agripreneurship Development as a tool to	Bairwa S. L., Lakra		Available online www.pdfdrive.com

	upliftment of Agriculture. 2014. International Journal of Scientific and Research Publications, Vol.4,No.3,pp.1-4	K.,Kushwaha S., Meena L.K., and Kumar P		
2.	Small Town Big Money: Entrepreneurship and Opportunity in Today's Small Town. 2018.	2. C. Williams		
3.	Handbook of Research on Agricultural Policy, Rural Development, and Entrepreneurship in Contemporary Economies (Advances in Environmental Engineering and Green Technologies). 1st Edition. 2020. IGI Global, PA, USA	J.V. Andrei, J. Subic, A. Grubor, and D. Privitera		Available online www.pdfdrive.com
3.	Strategies for Developing Agripreneurship among Farming Community in Uttar Pradesh. 2014. Journal of Asia Entrepreneurship and Sustainability Vol.8, No.1pp. 81-102	7. Singh A.P	2	Available Online https://www.eajournals.org/
4.	Small Town Big Money: Entrepreneurship and	C. Williams	3	Available at Library

	Opportunity in Today's Small Town. 2018.			
5.	Handbook of Research on Entrepreneurship in Agriculture and Rural Development. 2011. Edward Elgar Publishing Inc., MA, USA	G.A. Alsos, S. Carter, E. Ljunggren, and F. Welter	2	Available at Library
6.	When the Harvest is In: Developing Rural Entrepreneurship. Practical Action. 1989	S. Vyakarnam	2	Available at Library

Recommended Reference Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Agripreneurship Alliance: Growing the next generation of Agripreneurs in Africa. 2017.	4. The Swedish International Agricultural Network Initiative (SIANI)		Available online https://www.theagripreneur.org/
2.	A Guide to Strengthening Business Development Services in Rural Areas. 2015. Catholic Relief Services, MD, USA	R. Best, S. Ferris, and C. Wheatley, Edition		Available online www.pdfdrive.com

3.	Women's Entrepreneurship and Microfinance. 2017. Springer Nature Singapore Pte Ltd	C. Neoji, A.K. Bhandari, and S. Ghosh, Edition		Available online www.pdfdrive.com

12. AAE 5211 RESEARCH THESIS

Core Reading Material(s)

No.	Title	Author(s)	No. of Copies	Remarks
1.	Guide For Thesis Format, Latest Edition, Office of Research and Graduate Studies, CSUS, available free on web	California State University		www.csus.edu/gradstudies/forms/Thesis.pdf
2.	Research Methodology: Methods and Techniques	Kothari CR	4	Available online www.pdfdrive.com

a. Appendix IV: Academic Staff

	Name (Prof., Dr.,)	**University Teaching experience**	**List of publications**	**List of Patents**	**Academic qualifications**	
					Date obtained	**Institution**
1	Prof. Reuben O. Mosi	*1989-2010*: Lecturer to Assoc. Prof., University of Nairobi *2011-Present*: Prof., JOOUST	*Articles in reviewed books*: 2 *Articles in refereed journals*: 31 *Articles in Conferences and Workshops Proceedings*: 44	None	*1975*: BSc. Agriculture	Makerere University, Uganda
					1980: MSc Animal Breeding	University of Edinburgh, UK.
					1981: MSc Animal Production	University of Nairobi
					1984: PhD Animal Breeding	University of Wales, UK
2	Prof. Stephen G. Agong	*1989*: Lecturer, JKUAT *Present*: Prof., Vice Chancellor, JOOUST	*Books*: 5 *Book chapters*: 10 *Articles in*		*1987*: BSc Agriculture	University of Nairobi
					1989: MSc, Plant Breeding	University of Nairobi

			refereed journals: 80 *Articles in published conference proceeding*: 100		PhD Agricultural Sciences	Justus-Liebig University, Germany
3	Prof. Adrian W. Mukhebi	*1977-1983*: Lecturer, University of Nairobi *2012 - Present*: Associate Prof., JOOUST	*Books*: 1 *Book chapters*: 1 *Articles in reviewed books*: 9 *Articles in refereed journals*: 30 *Articles in published conference proceeding*: 38	-	*1974*: BSc Agric. Econ	Kansas State University, USA
					1976: MSc Agric. Econ	Kansas State University, USA
					1981: PhD, Agric. Econ	Washington State University, USA
4	Prof. Monica A. Ayieko	*1982-1987*: Asst. Lecturer, Egerton University College *1989-1995*: Research/Teaching Asst, University of Illinois, USA *1996-1998*: Lecturer, Maseno University *1998-2010*: Senior Lecturer, Maseno University *2010-2016*: Assoc. Prof., JOOUST 2016-Present: Prof., JOOUST	*Book chapters*: 1 *Articles in refereed journals*: 29 *Other non-referred documents in circulation*: 15 *Conference papers in referred proceeding*: 5	*Patented product*: 1	Diploma in Agriculture and Home Economics	Egerton Agricultural College
					BSc Community and Consumer Studies	University of Maryland, USA
					Family and Consumer Economics	University of Illinois, USA
					PhD Consumer Economics	University of Illinois, USA

5	Prof. Benard Muok	2015-2019 Senior Research Fellow, JOOUST 2019 - current Associate Professor JOOUST	a) Books = 3 b) Book chapters = 3 c) Articles in reviewed books = 3; d) Articles if refereed journals = 24; e) Articles in published conference proceeding = 13	None	Bachelors: BSc Forestry 1993 MSc: MSc Forestry 1997 Doctoral: PhD Tropical Agriculture 2005 Post-Doctoral: Post Doc Renewable Energy and Climate Change 2011	Moi University Moi University Kyoto University University of Edinburgh
6	Prof. Arnold O. Watako	*1983-1989*: Lecturer; Teachers Service Commission, JKUAT 1992-2008: Lecturer; JKUAT *2008-2013*: Senior Lecturer; JKUAT *2013-2016*: Senior Lecturer; JOOUST *2016-Present*: Assoc. Prof., JOOUST	*Book Chapter*: 1 *Papers in Refereed Journals*: 15 *Papers in Conference Proceedings Journals*: 16		*1980*: BSc Agriculture *1992*: MSc Horticulture *2006*: PhD Horticulture	University of Nairobi University of Nairobi JKUAT
7	Prof. Christopher O. Gor	*1988-1990*: Asst. Lecturer, JOOUST *1990-2010*: Lecturer, JOOUST *2010-2016*: Sr. Lecturer, JOOUST *2016-Present*:	*Papers in Refereed Journals*: 12 *Papers in Conference Proceedings Journals*: 7		*2008*: PhD Agric. Econ *1988*: MSc Agric. Extn. Education *1986*: BSc Agric. Econ	University of Nairobi University of Idaho, USA University of Idaho, USA

		Assoc. Prof., JOOUST				
8	Prof. Beatrice Anyango	*1986-1989*: Tutorial Fellow, University of Nairobi *1989-1992*: Asst. Lecturer, University of Nairobi *1992-1997*: Lecturer, University of Nairobi *1997-2010*: Senior Lecturer, University of Nairobi *2010-Present*: Assoc. Prof., JOOUST	*Book chapters*: 3 *Articles in refereed journals*: 8 *Conference papers in referred proceeding*: 5	None	*1992*: PhD Soil Microbiology	Wye College, University of London, UK
					1982: MSc Botany	University of Nairobi
					1980: BSc Botany and Zoology	University of Nairobi
					1977: Science Teacher Training	Kenya Science Teachers College
9	Prof. Maria Onyango	*1984-1990*: Lecturer, Teacher Training in Diploma College *1995-2010*: Lecturer, Maseno University *2010-2014*: Senior Lecturer, JOOUST *2014-Present*: Assoc. Prof., JOOUST	*Articles in refereed journals*: 11 *Conference papers in referred proceeding*: 5	None	*1984*: BEd Home Economics	University of Nairobi
					1995: MSc Entrepreneurial Studies	University of Stirling Scotland, UK
					1999: Post-Graduate Diploma, Organization Management	Witzenhausen Kassel University, Germany
					2000: Advanced Post-Graduate Certificate (APC)	University of Illinois, USA
					2009: PhD Entrepreneursh in Development	Kenyatta University
10	Prof. Dennis O. Ochuodho	*1997-1998*: Graduate Asst - KEFRI/Nairobi University	*Articles in refereed journals*: 59 Conference papers in	None	*1994*: BSc Biology	University of Nairobi
					1998: MSc Botany-Plant Ecology	University of Nairobi

		2005-2006: Lecturer, Maseno University *2006*: Research Asst, University of Bayreuth, Germany *2007*: Visiting Scientist, Kangwon National University, South Korea *2016-Present*: Assoc. Prof., JOOUST	referred proceeding = 15		*2004*: PhD Natural Sciences	University of Bayreuth, Germany
					2007-2012: Habilitation in Plant Ecology	University of Bayreuth, Germany
11	Prof. Fred A. Amimo	*1996-2002*: Research Asst, International Centre of Insect Physiology and Ecology *2008-2010*: Lecturer, University of Eastern Africa, Baraton *2011-2012*: Senior Lecturer, University of Eastern Africa, Baraton *2012-2013*: Assoc. Prof., University of East Africa, Baraton *2013-Present*: Assoc., JOOUST	*Articles in refereed journals*: 15 *Conference papers in referred proceeding*: 10	None	*1985*: BSc Biology	Andrews University
					1996: MSc Zoology	Kenyatta University
					2006: PhD Entomology	Michigan State University, USA
12	Prof. Darius O. Andika	*2003*: Graduate Assist., Maseno University	*Books*: 1 *Book chapters*: 1	None	*2002*: BSc Horticulture	Maseno University

		2006: Tutorial Fellow, Maseno University *2009*: Assist. Lecturer, Maseno University *2010*: Lecturer, JOOUST *2013-Present*: Senior Lecturer, JOOUST *2018-Present*: Director, Africa Center of Excellence for Sustainable Use of Insect for Human Foods, JOOUST	*Articles in refereed journals*: 18 *Articles in published conference proceeding*: 27		MSc Horticulture	Maseno University
					PhD Environmental Horticulture	Maseno University/ University of Hannover, Germany
13	Dr. George Ayodo	*2002-2003*: Forensic Analyst. Government Chemist Department, Kenya *2009-2013*: Postdoc. Univ. of Minnesota / KEMRI Project *2015-Present*: Program Dir., Indiana Univ. and KEMRI research projects Coordinator, Postgraduate program at School of Health Sciences in JOOUST Consultant Res. projects of	*Articles in refereed journals*: 24	None	*1995*: BSc Zoology, Chemistry, and Botany	Mohanlal Sukhadia University, India
					1997: MSc Human Genetics	Guru Nanak Development University, India
					2009: PhD Population Genetics	Kenyatta University - Kenya / Harvard, USA)

		KEMRI / Indiana Univ. Res. Projects Sr. Lecturer, JOOUST				
14	Prof . Patrick Hayombe	*2010-2013*: Lecturer, JOOUST *2013-Present*: Senior Lecturer, JOOUST 2019-Present; Associate Professor JOOUST	*Book chapters*: 9 *Articles in refereed journals*: 42 *Conference papers in referred proceeding*: 10	None	*1989*: BA Geography	University of Nairobi
					1997: MPhil Environmental Planning and Management	Moi University
					2010: PhD Environmental Planning and Management	Moi University
15	Dr. Calleb O. Ochia	*2015-Present*: Lecturer, JOOUST *2018-Present*: Chairman, Dept of Crop and Soil Sciences	*Articles In refereed journals*: 8 *In international conference proceedings*: 7	None	*1998*: BSc Agriculture	Egerton University
					2008: MSc Plant Breeding and Genetics	University of Nairobi
					2015: PhD Plant Breeding and Biotechnology	Makerere University
16	Dr. Daniel Onguru	*2001*: Laboratory attachment to CDC/KEMRI *2003-2006*: Nakuru Institute of Medical Sciences and Management *2008-Present*: CGHR/KEMRI Schistosomiasis Laboratory *2011-Present*: Lecturer, and Chair, Department of Biomedical Sciences, School of Health Sciences, JOOUST	*Articles in refereed journals*: 7	None	*2002*: BSc (Hons) Biomedical Science and Technology	Egerton University
					2006-2010: MSc. Biomedical Science & Technology (Immunology)	Maseno University
					2010: PhD Medical Immunology	Maseno University

17	Dr. Alice N. Muriithi	*2001-2006*: Lecturer, Kenya Methodist University 2012-Present: Lecturer, JOOUST	*Articles in refereed journals*: 7 *Articles in international conference proceedings*: 4	None	*1984*: Diploma Agriculture and Home Economics	Egerton College
					Bsc, Agriculture (Horticulture major)	University of Guelph, Ontario Canada
					1996: MSc, Plant Physiology	University of Guelph, Ontario Canada
					2014: PhD Horticulture	JKUAT
18	Dr Walter Akuno	*2015-Present*: Lecturer, JOOUST *2015-Present*: Registrar Academic Affairs, JOOUST	*Articles in refereed journals*: 6	None	*1988*: Diploma, Dairy Science and Technology	Egerton University
					BSc, Animal production	Egerton University
					2006: MSc, Agricultural Extension	Egerton University
					2015: PhD, Agricultural Extension	Egerton University
19	Dr. Stephen A. Asito	*2012-Present*: Lecturer, JOOUST *2010-2012*: Senior Research Officer, State University of New York, Upstate Medical School, USA / KEMRI Projects *2005-2010*: Research Officer, State University of New York, Upstate Medical School, USA / KEMRI Projects *2003-2005*: Asst Research Officer, State University of New York,	*Book chapters*: 1 *Articles in refereed journals*: 14 *Conference papers in referred proceedings*: 14	None	*2000*: BSc	JKUAT
					2005: Immunology	Kenyatta University
					2011: PhD Cell and Molecular Biology	Maseno University

		Upstate Medical School, USA / KEMRI Projects.				
20	Dr. Collins K. Mweresa	*2010-2011*: Lecturer, Wageningen University, the Netherlands *2012-2013*: Lecturer, Wageningen University, the Netherlands *2013-2014*: Scientist, Assessment of the Infectious Reservoir of Malaria (AFIRM) *2013-2015*: Scientist and SolarMal Project Manager, Human Health Division, ICIPE-TOC, Kenya: *2016-Present*: Part-time Lecturer, Department of Biological Science, Egerton University *2016-Present*: Research Consultancy, Science for Health Society, Kenya *2016-Present*: Lecturer, Department of Biological Sciences, JOOUST	*Articles in refereed journals*: 20 *Conference papers in referred proceedings*: 8	None	*1992*: BSc Zoology and Botany	Egerton University
					1997: Post-graduate Diploma Education (PGDE)	Egerton University
					2008: MSc Medical Parasitology	University of Nairobi, and KEMRI
					2014: PhD Entomology	Wageningen University and Research Centre, The Netherlands and ICIPE
21	Dr. John M. Nyongesah	*2008-2010*: Underwriter II	*Articles in refereed journals*: 17		*2005*: BSc	University of Nairobi
					2010: MSc	Maseno University

		(Credit): Equity Bank Ltd *2010-2013*: Res. Asst., Desert Ecosystem Monitoring, Xinjiang Institute of Ecology and Geography, UCAS, China *2013*: Tutorial Fellow, JOOUST *2013-Present*: Lecturer, JOOUST			Botany (Plant Ecology)	
					2013: PhD Natural Science (Ecology)	University of Chinese Academy of Sciences, China
22	Dr. Charles Angira	*2011-2012*: Projects Dir/ Country Rep., Kenya *2013-2016*: Part time Lecturer and Researcher, JOOUST, MMUST, CUEA, UZIMA, GLUK, JKUAT *2016-2017*: Lecturer and Researcher, JOOUST	*Articles in refereed journals*: 8 *Articles in Conference Proceeding*: 5	None	*2005*: Diploma Community Health and Development	Tropical Institute of Community Health and Development (TICH) in Africa
					2007: Higher Diploma Community Health and Development	Great Lakes University of Kisumu (GLUK), Kisumu - Kenya
					2009: MSc Community Health and Development	Great Lakes University of Kisumu (GLUK), Kisumu - Kenya
					2014: PhD Peace and Conflict Studies	Masinde Muliro University of Science and Technology (MMUST)
23	Dr. Brian Oduor	*2016*: Tutorial Fellow, School of Mathematics and Actuarial Science, JOOUST *2016-Present*: Lecturer, School of Mathematics and Actuarial Science, JOOUST	*Book chapters*: 1 *Articles in refereed journals*: 5 *Conference proceedings*: 3	None	*2002*: BEd (Arts)	Kenyatta University
					2012: MSc Applied Statistics	Maseno University
					2016: PhD Applied Statistics	JOOUS T
24	Dr. John Oloo	*2016-Present*:	*Articles in*		*1986*: Diploma in	Egerton College

		Lecturer, JOOUST	*refereed journals*: 7	Range Manag	
				1995: Resou Manag	Egerton University
				2009: Enviro Scienc	Egerton University
				2014: Enviro Scienc	Egerton University
25	Dr. Francis Odundo	*2003-2011*: TSC Teacher *2011-2014*: Asst. Lecturer, JOOUST *2014-Present*: Lecturer, JOOUST	*Book chapters*: 9 *Articles in refereed journals*: 42 *Conference proceedings*: 10	*2001*:	University of Nairobi
				2010: Applie	Maseno University
				2014:	JOOUST
				Statist	

Academic Staff of the School of Agricultural and Food Sciences

S/No.	Name	Grade	Qualification	Specialization	Years of experience	Full time/Part time
1	Prof. Reuben O. Mosi	Professor	PhD	Animal Science and Food Security	28	Full time
2	Prof. Stephen A. Gaya	Professor	PhD	Horticulture (Urban Food Security)	28	Full time
3	Prof. Monica A. Ayieko	Professor	PhD	Consumer Economics and Food Security	35	Full time
4	Prof. Adrian W. Mukhebi	Associate Professor	PhD	Agricultural Economics and Food Security	40	Full time
5	Prof. Benard Muok	Associate Professor	PhD	Tropical Agriculture	25	Full time
6	Prof. Arnold O. Watako	Associate Professor	PhD	Horticulture	36	Full time

7	Prof. Christopher O. Gor	Associate Professor	PhD	Agricultural Economics and Food Security	29	Full time
8	Prof. Beatrice Anyango	Associate Professor	PhD	Microbiology	27	Full time
9	Prof. Maria Onyango	Associate Professor	PhD	Entrepreneurship Development in Food Security	32	Full time
10	Prof. Fred A. Amimo	Associate Professor	PhD	Entomology	25	Full time
11	Prof. Denis O. Ochuodho	Associate Professor	PhD	Ecology	20	Full time
12	Prof. Harrison Tsingalia	Associate Professor	PhD	Ecology	15	Full time
13	Prof. Darius O. Andika	Senior Lecturer	PhD	Horticulture and Food Security	14	Full time
14	Dr. Solomon O. Ogara	Senior Lecturer	PhD	Computer Security	17	Full time
15	Dr. Alice N. Muriithi	Lecturer	PhD	Horticulture	14	Full time
16	Dr. Daniel Onguru	Lecturer	PhD	Medical Immunology	8	Full time
17	Dr. Stephen A. Asito	Lecturer	PhD	Zoology	6	Full time
18	Prof. Patrick Hayombe	Lecturer	PhD	Environmental Planning and Management	20	Full time
19	Dr. Francis Odundo	Lecturer	PhD	Applied Statistics	5	Full time
20	Dr. George Ayodo	Lecturer	PhD	Biomedical and Epidemiology	18	Full time
21	Dr. John M. Nyongesah	Lecturer	PhD	Botany/Plant Ecology	5	Full time
22	Dr. Walter Akumo	Lecturer	PhD	Agricultural Extension and Food Security	20	Full time
23	Dr, Charles Angira	Lecturer	PhD	Peace and Conflict Studies	5	Full time
24	Dr. Brian Oduor	Lecturer	PhD	Applied Statistics	5	Full time

25	Dr. John Oloo	Lecturer	PhD	Environmental Science	20	Full time
25	Dr. Calleb O. Olweny	Lecturer	PhD	Plant Breeding and Biotechnology	17	Full time
26	Dr. Collins K. Mweresa	Lecturer	PhD	Entomology	15	Full time
27	Prof. Peter Chalo	Professor	PhD	Food Science and Technology	30	Adjunct

SUPPORT STAFF

List of relevant academic support/technical staff listed according to departments/disciplines/subjects and showing qualifications and years of working experience

No.	**Name**	**Qualification**	**Discipline**	**Years of Experience**	**Full time/Part time**
1.	Ng'gong'a C. Adino	BSc	Agribusiness	4	Full time
2.	William Emitaro	MSc	Microbiology	5	Full time
3.	Dickson Owuor	MCM	ICT	10	Full time
4.	Charles Dwasi	MSc	Project Management	5	Full time

b. Appendix V: University Procedures on Curriculum Design and Review

JARAMOGI OGINGA ODINGA UNIVERSITY

OF SCIENCE AND TECHNOLOGY

DOCUMENT	**:**	**PROCEDURE FOR CURRICULUM DESIGN AND REVIEW**
DOC. NO	**:**	**JOOUST/AA/OP 12**
AUTHORIZED BY	**:**	**VICE-CHANCELLOR SIGN:**
ISSUED BY	**:**	**DEPUTY VICE-CHANCELLOR SIGN:**

ACADEMIC AFFAIRS

0.1 DOCUMENT DISTRIBUTION

S. NO	TYPE	OFFICE
(i)	Original	QMR
(ii)	Copy	VC
(iii)	Copy	DVC, AA
(iv)	Copy	R, AA
(v)	Copy	Principal, Deans, Directors and CoDs
(vi)	Soft Copy	JOOUST Website by password

0.2 DOCUMENT CHANGES

DATE	CHANGES	AUTHORIZED BY
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……	……	……
……	……	……

1.0 Purpose: To ensure effective curriculum design and review for academic programmes in JOOUST

2.0 Scope: It covers effective design, development, review and implementation of Curricula for academic programmes in JOOUST.

3.0 References:
4.1 ISO 9001:2015 Standard
4.2 CUE Guidelines for Designing Curriculum
4.3 KEBS Academic Quality Standards
4.4 JOOUST Quality Manual
4.5 JOOUST Statutes
4.6 JOOUST Strategic Plan 2016-2021

4.0 Abbreviations/Acronyms and Definitions

4.1 JOOUST:	Jaramogi Oginga Odinga University of Science and Technology
4.2 CUE	Commission for University Education
4.2 QMR:	Quality Management Representative
4.3 VC:	Vice-Chancellor
4.4 DVC AA:	Deputy Vice-Chancellor, Academic Affairs
4.5 RAA:	Registrar Academic Affairs
4.6 COD:	Chairman of Department
4.7 Curriculum:	The academic content of a given programme.
4.8 School Board:	Decision organ in a School or Faculty with similar programmes.
4.9 Senate	Top academic organ of the University

5.0 Principal responsibility: DVC AA shall be responsible for the implementation of this procedure.

6.0 Method

6.1 Dean/CoD shall ensure collection and collation of interested parties views on the

need to design new curriculum every two years or/and as need arise.

6.2 Dean/CoD shall ensure collection and collation of interested parties views on the need to review existing programmes which have been implemented for a full cycle or/and as need arise.

6.3 Dean/CoD shall ensure interested parties views are collected using appropriate data collection methods such as surveys, administration of questionnaires, interested parties forums, media contacts, research reports, commissioned studies, customer feedback among others.

6.4 The Dean/CoD shall ensure collected and collated views are used to design new or review the existing programme.

6.5 The Dean/CoD shall present the proposed new/reviewed programmes to the School/Departmental Boards for consideration and recommendation.

6.6 The Dean shall forward the new/reviewed programme to DVC, AA for tabling in the Deans Committee.

6.7 The Dean shall present the proposed new/reviewed programme to the Deans Committee for consideration and recommendation.

6.8 The DVC, AA shall present the proposed new/reviewed programme to the Senate for consideration and approval.

6.9 The VC shall forward the approved programme to the Commission for University Education (CUE) and/or professional body for accreditation.

6.10 If the programme is not approved at any stage, it shall be reverted to the proposer to incorporate and implement the views/decisions as suggested.

6.11 The VC shall communicate the decision of the CUE and/or professional body to the DVC, AA

6.12 The DVC, AA shall communicate the results to the Dean/CoD.

6.13 The Dean/CoD shall mount the new/revised programme if accredited.

c. Appendix VI: University Procedures on Teaching

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

DOCUMENT: **PROCEDURE FOR TEACHING**

DOC. NO: **JOOUST/VC/AA/OP 12**

AUTHORIZED BY : VICE-CHANCELLOR **SIGNATURE:**

ISSUED BY **: DEPUTY VICE-CHANCELLOR ACADEMIC AFFAIRS** **SIGNATURE:**

0.1 DOCUMENT DISTRIBUTION

S. NO	TYPE	OFFICE
(i)	Original	QMR
(ii)	Copy	VC
(iii)	Copy	DVC, AA
(iv)	Copy	R, AA
(v)	Copy	Principal, Deans, Directors and CoDs

0.2 DOCUMENT CHANGES

DATE	CHANGES	AUTHORIZED BY
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……..	……	……..
……..	……..	……..
….....	……...	……..
……..	……	……..

1.0 Purpose:

To ensure effective teaching.

2.0 Scope :

It covers all aspects of teaching in the University.

3.0 References:

i. ISO 9001:2015 Standard
ii. JOOUST Quality Manual
iii. JOOUST Statutes
iv. JOOUST Service Charter
v. Statutory & Regulatory Requirements
vi. JOOUST Student Rules & Regulations

4.0 Abbreviations /Acronyms and Definition of terms:

i. **CoD:** Chairperson of Department
ii. **DVC (AA):** Deputy Vice-Chancellor, Academic Affairs
iii. **JOOUST**: Jaramogi Oginga Odinga University of Science and Technology
iv. **QMR:** Quality Management Representative
v. **R (AA):** Registrar, Academic Affairs
vi. **SA:** School Administrator
vii. **VC:** Vice-Chancellor

5.0 Responsibility: DVC, AA shall be responsible for the implementation of this procedure.

6.0 Method

6.1 Course Distribution

6.1.1 The Dean/CoD shall convene a School/Departmental board meeting to allocate courses to lecturers at least one month before the beginning of each Semester.

6.1.2 The courses shall be distributed according to specialization and availability of staff.

6.1.3 For courses where there are shortfalls in full time staff, the board shall recommend engagement of part-time lecturers by the University at least

three weeks before the beginning of each Semester.

6.1.4 The Dean/CoD shall notify concerned lecturers on the distribution of courses within one week after the distribution

6.1.5 The Dean/CoD shall forward part-time lecturer requirements to the DVC,AA for processing of appointments.

6.2 Course Outline

6.2.1 The lecturer shall develop and submit the course outline to the Dean/CoD for approval two weeks to the beginning of the semester.

6.2.2 The lecturer shall ensure course outline contains the Course title, code, objectives, subject matter, mode of evaluation and references.

6.2.3 The lecturer shall distribute duly approved course outline to the students at the beginning of lectures.

6.3 Delivery of Lectures

6.3.1 The Timetabling Coordinator shall forward teaching time table to the Schools/departments and post the same on the student's notice boards at the beginning of each semester.

6.3.2 The lecturer shall give the lecture and/or administer practical lessons as timetabled

6.3.3 The lecturer shall administer an attendance register in each session.

6.3.4 Lecturer shall ensure all the practical lessons are performed according to the relevant procedures.

6.4 Evaluation

Class Attendance

6.4.1 The R,AA shall develop and distribute a standard class attendance register to Schools/Departments at least one week before the lectures begin.

6.4.2 The lecturer shall submit the duly filled registers and analysis monthly to the Dean/CoD

6.4.3 The Dean/CoD shall submit the analysis to R, AA two weeks before examinations for necessary action. (Refer to **JOOUST/AA/R/OP 13**: Procedure for Examinations).

Course Evaluation

6.4.4 The Director Quality Enhancement and Assurance shall develop and distribute course evaluation forms to the Deans/CoD two weeks to the beginning of examinations.

6.4.5 SA shall administer the forms to the students.

6.4.6 School Administrators shall submit the duly filled forms to the Director Quality Enhancement and Assurance through the Deans/CoD at the end of each semester.

6.4.7 The Director QEA shall analyse the forms, compile a report and submit it to the VC for action.

Examination

6.4.8 The lecturers shall administer Continuous Assessment Tests (CATs) and end of semester examination as per *procedure* ***JOOUST/AA/R/OP 13****: Procedure for Examinations*

4.7 Appendix VII: University Procedures on Management of Examinations

JARAMOGI OGINGA ODINGA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

DOCUMENT : PROCEDURE FOR MANAGEMENT OF EXAMINATIONS

DOC. NO : JOOUST/AA/R /OP 11

AUTHORIZED BY : DEPUTY VICE-CHANCELLOR SIGN:
ACADEMIC AFFAIRS

ISSUED BY : REGISTRAR SIGN:
ACADEMIC AFFAIRS

0.1 DOCUMENT DISTRIBUTION

S. NO	TYPE	OFFICE
i.	Original	QMR
ii.	Copy	VC
iii.	Copy	DVC AA
iv.	Copy	RAA
v.	Copy	Principal, Deans and Directors (v)
vi.	Copy	CoD

0.2 DOCUMENT CHANGES

DATE	CHANGES	AUTHORIZED BY
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…….	……..	……..
……..	……..	……..……
…….	……..	…….

1.0 Purpose: To ensure proper, efficient and effective process for managing examinations.

2.0 Scope: It covers the administration of examinations, issuance of examination results and academic transcripts and certificates.

3.0 References:

i. ISO 9001:20015 Standard
ii. JOOUST Quality Manual
iii. JOOUST Statutes
iv. JOOUST Service Charter
v. JOOUST Examination Policy
vi. JOOUST Examination Rules and Regulations

4.0 Abbreviations /Acronyms and Definition of terms

i. **CoD:** Chairperson of Department.
ii. **Dean**: Head of School
iii. **DVC, AA:** Deputy Vice Chancellor, Academic Affairs
iv. **EO:** Examination Office
v. **JOOUST**: Jaramogi Oginga Odinga University of Science and Technology
vi. **QMR**: Quality Management Representative
vii. **R,AA:** Registrar Academic Affairs
viii. **VC:** Vice-Chancellor

5.0 Responsibility:

R, AA shall be responsible for the implementation of this procedure**.**

1.0 Method

1.1 Setting examinations

1.1.1 R,AA shall prepare a schedule of examination activities and forward to the Deans one week before commencement of the semester.

1.1.2 Deans shall give notices to course lecturers to set examinations within one month after commencement of the Semester.

6.1.2.1 Course lecturers shall forward examination question papers in soft and hard copies and marking Schemes to the Deans a week after receiving the notice.

1.2 Appointment of External Examiners

1.2.1 Deans shall identify External Examiners and forward their names to R,AA, one week after commencement of semester.

1.2.2 R, AA shall table the names of External Examiners at Deans Committee for discussion one month after commencement of the semester.

1.2.3 Deans Committee shall recommend to Senate the names of External Examiners for appointment.

1.2.4 DVC, AA shall table the names at Senate for approval one week after the Deans Committee meeting.

1.2.5 DVC, AA shall prepare and release appointment letters to External examiners within one week after Senate approval.

6.3 Moderation

1.3.1 Deans shall organize for internal moderation one week after receiving the examinations.

1.3.2 Deans shall forward internally moderated examination question papers to External Examiners for further moderation one week after internal moderation.

1.3.3 Deans shall receive back moderated examination papers from the External Examiners one week after moderation.

1.3.4 Deans shall submit the externally moderated examination question papers (both soft and hard copies) to R, AA within one week after receiving them from the External Examiners.

6.4 Examination Processing

1.4.1 R,AA shall oversee the printing, collation, stapling and packaging of the examinations.

1.4.2 R,AA shall ensure safe and proper storage of examination question papers.

6.5 Registration for Examinations

6.5.1 R,AA shall prepare registration schedules

6.5.2 R,AA shall release a circular to students informing them of the examination registration dates at least five weeks before the start of examinations.

6.5.3 R,AA shall register students at least four weeks before the start of examination

6.5.4 R,AA shall issue examination cards to fully registered students.

6.5.5 Teaching and Examination Time-Table Coordinator shall release examination time-tables to students and invigilators at least two weeks before the examinations begin.

6.6 Examination Security

6.6.1 R,AA shall receive examination question papers from the Deans at least five weeks before the examinations begin.

6.6.2 R,AA shall register and pack individual examination question papers and store them in a secure safe.

6.7 Conduct and Invigilation of Examinations

6.7.1 RAA shall coordinate and supervise the conduct of examinations.

6.7.2 EO shall release examinations to Chief Invigilators at least half an hour before the start of all respective examinations.

6.7.3 Invigilators shall administer examination attendance registers during each session and ensure that all students have legitimate examination cards.

6.7.4 Invigilators shall supervise the students while writing the examinations.

6.7.5 The invigilator shall forward the students examination scripts to the course lecturer.

6.8 Marking of Examinations

6.8.1 Course lecturers shall mark the examinations within two weeks after the end of examinations.

6.8.2 Course lecturers shall forward the marksheets, scripts and marking schemes to the Deans of Schools within two weeks after the end of the examinations.

6.9 Processing Examination Results

6.9.1 Director, Quality Assurance and Enhancement shall invite External Examiners for moderation of examination results one week after the end of marking.

6.9.2 External Examiners shall moderate results and forward their reports to the VC immediately after moderation.

6.9.3 CoDs shall convene Departmental Boards of Examiners to consider the results one week after external moderation.

6.9.4 Deans shall convene School Boards of Examiners to discuss the results one week after receiving results from Departmental Boards.

6.9.5 Deans shall forward provisional results to Deans Committee for consideration and recommendation to Senate.

6.9.6 DVC,AA shall forward provisional results to Senate for final approval.

6.9.7 DVC,AA shall release provisional results after Senate's approval.

6.9.8 Deans shall issue provisional academic transcripts to students two weeks after approval of results by Senate.

6.9.9 DVC,AA shall release final transcripts to students within two weeks after graduation.

6.10 Examination Irregularities, Leakage, Remarking

Invigilators/Lecturers shall handle irregularities, leakages and remarking as

provided for in the Student Rules and Regulations.

6.11 Replacement of Transcripts

6.11.1 The student shall pay requisite fees and fill in a transcript replacement form.

6.11.2 R,AA shall receive the dully filled form and forward to respective Deans for recommendation within two days of receipt.

6.11.3 R,AA shall inform the students within three days to collect their transcripts.

6.11.4 Students shall sign a transcript receiving form.

7.0 Appendix VIII: Stakeholders workshop

ALEX EKWUEME FEDERAL UNIVERSITY NDUFU-ALIKE

Update on Progress of the Implementation of the CHAIN Project at AEFUNAI

AEFUNAI TEAM

2nd April, 2024.

Outline

- PG Programme at AEFUNAI
- Rationale for MSc. In Food Value Chain Mgt at AEFUNAI
- Course Structure of the Proposed Food Value Chain Management Master Programme at AEFUNAI
- Progress on the Procurement of the Equipment
- In-depth Interview of Students, Lecturers and Entrepreneurs
- Planned Focus Group Discussion/Workshop in April/May

Postgraduate Programme at AEFUNAI

- Alex Ekwueme Federal University Ndufu-Alike, Nigeria has a School of Postgraduate Studies headed by the Dean.
- The School runs Postgraduate Diploma (PGD), Master (M.A., M.Sc), and Doctor of Philosophy (Ph.D.) Programme.
- The full-time PGD program is for two semesters while the part-time runs for three semesters and the course codes are 700s.
- The full-time Master program is minimum of three semesters and maximum of six semesters with maximum number of credit load of 40 units for the three semesters.
- The course codes are 800s.
- The part-time Master program is minimum of four semesters and maximum of eight semesters with maximum number of credit load of 40 units for the three semesters.
- The course codes are 800s.

Rationale for MSc. In Food Value Chain Mgt at AEFUNAI

- The proposed master's degree programme in **Agribusiness** (with Specialization in Food Value Chain Management) at AEFUNAI is envisioned to bridge the gap between policy aspirations and their operationalization, preparing a new generation of agribusiness professionals to lead and innovate within Nigeria's agricultural sector.

- This initiative aligns with the government's broader economic goals of food security, export diversification, and employment generation, marking a significant step towards harnessing the agricultural sector's potential in driving Nigeria's economic development.

- The programme is designed to produce innovative value chain managers, transition managers, consultants, researchers, quality assurance inspectors, capacity building experts, project/programme managers, policymakers with the needed skills and knowledge to drive agribusiness and food value chain development in Nigeria and elsewhere.

Structure of the Proposed Food Value Chain Management Master Programme at AEFUNAI

- The proposed M.Sc. degree programme will be in the Department of Agribusiness and Management of the Faculty of Agriculture.
- Currently, the Faculty of Agriculture at AEFUNAI has not started any PG programme.
- However, the Department of Agribusiness and Management has submitted proposal to commence Postgraduate Programmes (PGD, M.Sc., and Ph.D) including a proposal to run a M.Sc. and Ph.D Programmes in Agribusiness (**with Specialization in Food Value Chain Management**).
- The University's Curriculum Committee and Postgraduate School are reviewing the submission.
- A resource verification is expected this year by the National Universities Commission.
- The proposed programme will be by both course work and research.
- It will run on both full-time and part-time bases. The duration of the programme is as follows:
- **Full time Structure**
  - Minimum of 3 semesters
  - Maximum of 6 semesters
- **Part time Structure**
  - Minimum of 4 semesters
  - Maximum of 8 semesters

Structure of the Proposed Food Value Chain Management Master Programme at AEFUNAI

Graduation Requirements

- Students are required to pass all the courses specified in this curriculum before graduation.
- The total credit load for all the courses is 37 units.
- These include 27 units of core/taught courses, 1 unit of seminar, 3 units of agribusiness incubation experience, and 6 units of dissertation.

Proposed Degree Nomenclature

- Students who have successfully completed graduation requirements can earn the following degree: Master of Science (M.Sc.) degree in Agribusiness (Specialization in Food Value Chain Management).

Grading

- Grading for all courses and dissertation taken under this Master's degree programme shall be as follows:

  A - 70% and above
  B - 60% - 69%
  C - 50% - 59%
  F - 0% - 49%

- The pass mark for all the courses and dissertation is 50%. Any score lower than this shall be recorded as Failure and the course must be re-taken/repeated at the next available opportunity.

Structure of the Proposed Food Value Chain Management Master Programme at AEFUNAI

Distribution of courses by year and semester

Year One: First Semester		
Course Code	Course Title	Credit Unit
ABM 801	Advanced Statistical Methods and Econometrics for Agribusiness	3
ABM 803	Managerial Economics in Agribusiness	2
ABM 805	Agricultural Marketing and Agribusiness Organization Management	3
ABM 811	Agribusiness Value Chain Analysis and Development	3
ABM 813	Gender in Value Chain Management	2
ABM 833	Entrepreneurship, Strategic Thinking and New Product Development	3
	Total credit	**16**

Year One: Second Semester		
Course Code	Course Title	Credit Unit
ABM 802	Research Methods in Agribusiness and Value Chain Management	3
ABM 804	Agribusiness and Value Chain Incubation	3
ABM 806	Seminar in Agribusiness and Value Chain Management	1
ABM 812	Crop, Livestock and Fish Value Chain Management	3
ABM 842	Agribusiness Project Appraisal and Evaluation	3
ABM 852	Agribusiness Policy and e-business	2
	Total credit	**15**

Year Two >>>

Course Code	Course Title	Credit Unit
ABM 880	M.Sc. Dissertation	6
	Total credit	**6**
	Grand Total	**37**

Progress on the Procurement of the Equipment

- We have written to the University that AEFUNAI CHAIN Project team wants to commence the procurement of CHAIN project equipment.
- The University has directed the Procurement Unit of the University to work with AEFUNAI CHAIN Project team for the procurement.
- The Procurement Unit and AEFUNAI CHAIN Project team identified companies/suppliers that could submit quotation for the categorized (five) lots of the CHAIN Project equipment.
- The Procurement Unit invited/requested the companies/suppliers to submit quotation for the different lots of the CHAIN Project equipment.
- Some suppliers have submitted their quotations
- AEFUNAI CHAIN Project team and the Procurement Unit of the University will meet this month to review submissions and select suppliers.
- After the meeting, the actual procurement/purchase of the equipment will take place.

In-depth Interview of Students, Lecturers and Entrepreneurs

- AEFUNAI CHAIN Project team has commenced the interview of stakeholders – students, lecturers, and entrepreneurs as part of tasks 1.6 and 1.7 of the project.

- The team has interviewed 29 stakeholders comprising 5 entrepreneurs, 13 lecturers from different backgrounds in Agriculture, and 11 students from different disciplines in Agriculture.

- The transcripts have been submitted to the tasks manager and Dr Bernd Muller.

Planned Focus Group Discussion/Workshop in April/May

- AEFUNAI CHAIN Project team is planning the stakeholders' workshop (focus group discussion) in April/May 2024.
- The team plans to communicate the University for the proposed workshop to get approval and date for the workshop.
- The team has identified some relevant stakeholders (Policymakers, Private Sector Actors, Academia) would invited them to participate.

Thank you for your attention

REPORT ON PROJECT CHAIN ACTIVITIES

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGERIA

By

Prof. Likita TANKO

Team Lead, FUTMINNA

GENERAL OVERVIEW

Administrative Issues

Group Meetings

Staff Costs

Travel Costs

Purchase of Equipment

Postgraduate Curriculum

Update on Tasks 1.6 & 1.7

Administrative Issues

- Keeping financial records
- Following procurement procedures in our university
- Four persons are signatories to the dedicated Project Account: The University Bursar, Deputy Bursar, Project CHAIN Team Lead for the university and one other member of the research team
- Keeping records of internal processes
- Keeping records of technical documentation: who did what and on what date

Group Meetings

- So far, we have had over ***10 physical meetings….mostly as a Group*** or at Committee levels
- We keep records of our meetings including minutes of each meeting
- For physical meetings, each attendee signs the attendance sheets
- Presentations made at the meetings are also kept

Staff Costs

- Payment is handled centrally at the University Accounts Unit/ Bursary Unit

- Payment vouchers are raised and kept

Travel Costs

- There are fixed sums for travel
- Adopting our university travel expense procedures
- Entitlements are computed based on what obtains in the university for staff who travel outside the university on official assignments

Purchase of Equipment

- We adopted the tendering procedure of the Federal Republic of Nigeria
- We adopted the Procurement Act guiding the Nigerian Constitution whereby 3 suppliers submit tenders
- They signed to attest that they attended the Tendering meeting
- Companies that bade all have tax clearance
- Against the backdrop that procurement must be made within the first year:

European Commission

Purchase of Equipment (cont'd)

- Procurement of project equipment is as it obtains in our university
- If the sum exceeds EUR25,000, it must go the Tenders' Board

Tender specifications include:

- Specification
- Minimum requirement for a supplier to deliver
- Technical requirements

❑Description of how the selection was made

❑Committee was formed and the Committee determined which offer was best

Purchase of Equipment (cont'd)

- We received 3 offers from 3 different tendering firms
- Budget could not allow procurement of a new vehicle. **Procurement Law** in Nigeria does not accommodate purchase of second hand or fairly used vehicles
- Procurement processes are on. Have been slowed down because of internal processes Finally, Approval has been secured - minus Project vehicle Waiting to take delivery of supplies

Postgraduate Curriculum

- Draft Curriculum
- Extension Village outreach
- Wide consultations before preparation of the curriculum on **MASTER FOOD VALUE CHAIN MANAGEMENT:**
- My team have interacted with the 4 Commissioners under the Agriculture sector of Niger State for the Ministries of Agriculture, Min. of Liv. Fisheries & Aquaculture, Min. of Rural Devt and Min. of Nomadic and Pastoral Affairs

On a sad note……

- Commenced processes for appointment of a new LEAR

Update on Tasks 1.6 & 1.7

- *Interviews are ongoing*
- Transcriptions are being made and the completed TRANSCRIBED forms will be sent to Mr. Dan Bodescu and Dr Bernd as soon as we complete them


Thank You

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA (FUTMINNA)

SCHOOL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY (SAAT)
DEPARTMENT OF AGRICULTURAL ECONOMICS & FARM MANAGEMENT

PROPOSED CURRICULUM

FOR

GRADUATE PROGRAMME IN MASTER OF TECHNOLOGY (M.TECH.) DEGREE IN FOOD VALUE CHAIN MANAGEMENT

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1.0 Rationale for the Program

The quest for agricultural transformation, economic growth and poverty reduction has been the policy thrust by successive governments in Nigeria. Reduction of widespread hunger and unemployment has led to the promotion and creation of agribusinesses and linkages to small and medium enterprises across the agricultural commodity value chains. Value chain analysis identifies opportunities in the chain that will enhance its performance and returns to its participants. High value chains can contribute to food security in the dimensions of access, availability and quality of food primarily by the increase of production volumes, farm diversification, generating higher incomes, reducing postharvest losses, and upgrading technologies to use more efficiently the existing resources.

In recent past, increasing agricultural production and productivity at the farm level has been the focus. However, there is a change in focus from production to value addition activities, because lack of value adding concepts and activities along agricultural production and marketing processes have not brought significant change in the livelihoods of actors operating at the level of production alone. Studies have shown that other actors and not producers seem to realize more profit. More so, the modern competitive global business environment necessitates commercialization of the country's agriculture. Consequently, the need for the respective government and non-government organizations to contribute their quota towards the improvement of farmers' welfare, livelihoods and facilitating the maximization of benefits from their activities have become necessary in an evolving global and local market economies. The development of agro-industries with emphasis on promoting effective agro-value chains as a means of further expansion of the leading role played by agriculture in has taken the center stage.

Consumer demand for commodities is predicated on the utility they confer to them. Adding value to agricultural commodities along the chain has the propensity to meet the ever-changing interests of consumers. Agribusiness enterprises should pay attention to consumer satisfaction through adding value to their goods and services along the market chains. Value addition and consideration of consumers' demands could be achieved through flourishing agribusiness enterprises that start the business from assessment of consumers' need and transformation of production resources and processes. Value-chains are market-oriented because they focus on what consumers' value and a deeper analysis could reveal inconsistencies in the chain and provide a framework for resolving them.

Owing to the dynamic nature of human population growth, matching supply to consumer demand is very crucial. This can be achieved through a value chain approach. Value chains create a complex system of markets characterized by series of linkages from input suppliers, enabling

framework to the final consumers. They also provide a means of addressing the complex and dynamic relationships between businesses, strategies for increasing efficiency and ways of enabling businesses to increase their productivity through added value. Entrepreneurs should strive to add value at each stage of the operations. To be able to do this requires a well-trained manpower capable of managing diverse and multidimensional functions inherent in agribusiness and value chain linkages in the system.

In view of this, the need for such competent graduates necessitated the inclusion of a Master Degree Programme (M.Tech.) in Food Value Chain in the CHAIN Project as a regular programme. The country needs more skilled and informed graduates with higher analytical and problem solving capacities who will not be job seekers but employers of labour.

The M.Tech. Programme curriculum is designed to produce proficient, highly skilled and innovative agribusiness and value chain experts capable of leading the commercialization of the country's agriculture in light of the dynamic nature of consumers' demand.

2.0 Philosophy

The philosophy of the M. Tech. Degree in Food Value Chain is to provide career opportunities to higher level manpower in research and academics in the private and public sectors to drive the economy by producing proficient, highly skilled and innovative agribusiness and food value chain experts capable of leading the commercialization of the country's agriculture in light of the dynamic nature of consumers' demand.

3.0 Vision

The Programme seeks to provide a world class academic and technological training in Food Value Chain suitable for the advancement of high calibre manpower for sustainable development.

4.0 Mission

To prepare graduates and postgraduates who are job creators that possess up to date knowledge and skills for conducting research in extending the frontiers of agricultural economics and disseminating such for development and improvement at community, national and global levels**.**

5.0 Aim and Objectives

The aim of the Master of Food Value Chain Management Programme is to produce high level manpower, competent learners, system thinkers and problem solvers. The objectives are to:

i. Equip students with research, practical and scientific enquiry skills through the

conduct of supervised research, seminar and thesis presentations and attitude required to enhance sustainable commercialization of agriculture;

ii. Produce problem solving researchers in the areas of agribusiness and value chain;

iii. Raise competent planners, negotiators, analysts and developers, change and risk managers in areas of agribusiness and value chain;

iv. Produce experts equipped with the knowledge, skills and attitude required to enhance sustainable commercialization of agriculture;

v. Produce experts who can educate, consult, advise, train and render community development services; and

vi. Raise innovative, gender sensitive and socially accountable experts who can identify agricultural business challenges and opportunities, and address consumers' dynamism.

6.0 Admission Requirements

Candidates seeking admission for M. Tech. Food Value Chain Management must have the following qualifications from recognized institutions:

i. Bachelor's Degree in Agriculture, Crop Production, Animal Production, Food Science and Technology, Agricultural Economics, Agricultural Extension, Fishery Technology, Agricultural Engineering, Veterinary Medicine, or Economics, with a minimum of 2nd Class Lower division or Higher National Diploma (HND) in Agricultural Economics or Agricultural Extension and Management, Crop Science, Animal production, Food Science and Technology, Agricultural Engineering, or Animal Health and Husbandry with a minimum of Upper Credit from a recognized institution and a Postgraduate Diploma(PGD) in Agriculture related course at Distinction level;

ii. O'Level credit passes in English Language, Mathematics, Chemistry, Biology/Agricultural science, and credit pass any of Geography or Economics with at least pass in Physics

iii. Candidates with postgraduate diploma from a recognized university with a minimum of Lower Credit (CGPA of 2.50) in relevant fields may be considered. A qualifying examination may also be necessary for this category of candidates.

iv. Candidates with PASS grade in first degree, are NOT qualified for admission.

7.0 Programme Structure and Duration

The M. Tech Food Value Chain Management Programme will be by both course work and research. It will run on full-time basis. The duration of the Programme is as follows:

- Minimum of 3 semesters (18 months)
- Maximum of 6 semesters (Three academic sessions)

A minimum of two semesters will be required for course work. Upon completion of course work, a student shall not proceed to thesis writing stage unless he/she has obtained a minimum cumulative grade point average (CGPA) of 2.50.

A student must record a minimum of 75% attendance in the course lectures to qualify for the final examination on the course. Meeting this requirement will be based on the Course Lecturer's attendance record.

Results of examinations must be presented to the Postgraduate School Board at the end of each semester for consideration and recommendation. The results will eventually be presented to the University Senate for approval.

8.0 Examination Offences and Penalties

The following offences which are directly related to the conduct of postgraduate examinations will attract the penalty of expulsion from the University:

(i) Forging of any document relevant to the examination e.g. student I.D. card, School fees payment receipts, etc.;
(ii) Smuggling in and out of the examination hall blank answer booklet or continuation sheet;
(iii) Involvement in an examination leakage;
(iv) Possession of any extraneous or foreign material inside the examination hall; and
(v) Failure to sign in and out of the examination may lead to the cancellation of candidate's examination.

9.0 Graduation Requirements

Candidates are required to earn a minimum of 38 credit units before graduation. These shall consist of 30 units of core courses, 6 units of thesis and 2 units of elective courses.

A student shall not be permitted to defend his/her thesis unless he/she has satisfied the course work

requirements and he/she is financially up to date.

At least one conference paper must have been presented from the thesis before external examination can be done. However, in the case of patent right, candidates should present application for registration in lieu of conference paper.

10.0 Academic Probation

A student shall be allowed to repeat registered but failed courses at the next available opportunity provided that the student maintained a minimum CGPA of 2.50. The student shall be allowed to remedy any failed course (s) once. Any failure thereafter will result in the withdrawal of the student from the programme.

11.0 Deferment of Admission

All cases of deferment of admission must be processed, considered and decided before the session's matriculation ceremony. No case of deferment of admission request shall be considered after the matriculation ceremony.

12.0 Thesis

Students will be expected to present at least one seminar before the final defense examination. Members of the University academic community are usually invited to attend.

An oral examination will be conducted for each candidate by an External Examiner and at least one Internal Examiner and the Head of Department who serves as the Chief Examiner where he/she is not a supervisor. The appointment of such examiners shall be on the recommendation of the School Postgraduate Committee approved by the Postgraduate School Board and presented to the university Senate for noting.

13.0 Graduation

The School Postgraduate Committee shall submit recommended results of their students to the Postgraduate School Board which shall consider the overall results of each student before recommending it to Senate for approval.

The university Senate shall be the body to grant final approval of all Master's degree results of candidates for the award of M.Tech. in Food Value Chain Management Degree. No candidate shall be recognized as having completed his/her course until Senate approves it.

14.0 Appointment of Supervisors

Two supervisors will be appointed for each Master degree candidate whose appointment shall be

approved by the Postgraduate School Board. The selection of Supervisors would be on the advice of the student's Head of Department through the School Postgraduate Committee. The selection will take cognizance of the subject area of the Supervisors.

In a situation where the student's research will cut across the usual boundaries between academic disciplines, a Co-Supervisor may be selected from other departments.

For the purpose of remuneration, the payment in respect of each Master Candidate shall be at the rate approved by Council/Senate from time to time.

Only PhD holders with a minimum of 2years shall be allowed to supervise Master's students.

15.0 Appointment of External Examiner for Oral Examination

Professors will be engaged as external examiners. However, a waiver may be granted to engage lecturers not below the rank of senior lecturer where it is difficult to get Professors.

The appointment of external examiners (Main and Alternate) shall be based on the recommendation of each School Postgraduate Committee to the Postgraduate School Board for approval. The Senate shall be notified accordingly.

The Head of Department will serve as the Chief Examiner in the oral defense examinations.

Grading for the Master's degree programme shall be as follows:

A	-	70% and above
B	-	60% - 69%
C	-	50% - 59%
D	-	45% - 49%
E	-	40% - 44%
F	-	0% - 39%.

The grading system for the Master's Degree Programme shall be free fall. The pass mark for all course work examination is 40%. Any score lower than this shall be recorded as Failure and the course must be re-taken/repeated at the next available opportunity.

16.0 Degree Nomenclature

Students who have successfully completed graduation requirements can earn the following degree: Master of Technology (M.Tech.) Degree in Food Value Chain Management.

17.0 Course Profile

The course profile for the programme is presented as follows:

17.1. Course Coding

The course offered in the programme will have the code 'FVC' followed by a three-digit figure. The first digit represents the year in which the course is offered, the second digit represents the semester (odd numbers represent first semester and even numbers represent second semester) and the last digit represents course category/sequence**.**

17.2. Distribution of Courses by Semester

Year 1:

First Semester

S/N	Course Code	Course Title	Credit	Semester	Core/Elective
1.	FVC 711	Research Methods and Statistics in Agribusiness Value Chain	2	1	Core
2.	FVC 712	Managerial Economics in Agribusiness	2	1	Core
3.	FVC 713	Agricultural Marketing and International trade	2	1	Core
4.	FVC 714	Agribusiness Value Chain Management: Principles and Practice	3	1	Core
5.	FVC 715	Entrepreneurship and Agribusiness Value Chain Management	2	1	Core
6.	FVC 716	Gender in Value Chain Management	2	1	Core
7.	FVC 717	Quantitative Techniques in Agribusiness	2	1	Core
8.	FVC 718	Fisheries and Aquaculture Value Chain Management	1	1	Elective
9.	FVC 719	Diffusion of Innovation	1	1	Elective
		Sub total	**15**		

Minimum Core Required = 15 units
Minimum Elective Required = 1 unit
Minimum Total = 16 units

Year 1:

Second Semester

S/N	Course Code	Course Title	Credit	Semester	Core/Elective
1.	FVC 720	Graduate Scientific Writing and Seminar Presentation	1	2	Core
2.	FVC 721	Crop Value Chain Management	3	2	Core
3.	FVC 722	Livestock Value Chain Management	3	2	Core
4.	FVC 723	Investment Analysis and Business Plan Development	2	2	Core
5.	FVC 724	Agribusiness Financial and Risk Management	2	2	Core
6.	FVC 725	Business Law	2	2	Core
7.	FVC 726	Food Processing and Preservation	2	1	Core
10.	FVC 727	Livestock Animal Production	1	2	Elective
11.	FVC 728	Horticultural and Ornamental Crop Production	1	2	Elective
		Sub total	**15**		

Minimum Core Required = 15 units
Minimum Elective Required = 1 unit
Minimum Total = 16 units

Year 2:

S/N	Course Code	Course Title	Credit	Core/Elective
1.	FVC 700	M. Tech. Thesis Research	**6**	Core

Summary

Total Minimum Core Required = 15 + 15 + 6 = 36 units
Minimum Electives Required = 2 units
Total Minimum required for graduation = **38 units.**

18.0 Course Descriptions

<u>First Semester</u>

1) FVC 711: Research Methods and Statistics in Agribusiness Value Chain (2 Credit units)

Course Description:

The course is designed for graduates to gain clear insights into the methods of acquiring knowledge, types and systematic process of research, defining the research problem, developing the research proposal and sampling design. They will also learn the methods of data collection and sources, data processing, statistical analysis techniques and interpretation, research report writing and presentation. Graduates will also gain full understanding of how research proposal is developed and how to write research project related to food value chain management.

Course Objectives:
Upon completion of this course, students will be able to:

1. Discuss issues related to research ethics, responsible conduct of human and animal research, and data collection, as well as recognize how to avoid plagiarism.
2. Utilize effective techniques for conducting a literature search using online databases and managing references.
3. Critique research articles and determine the quality of publications, identifying issues related to methodology and guidelines to improve scientific rigor and reproducibility.
4. Identify and apply the steps involved in the scientific method by formulating a research question, building effective scientific aims, generating a research hypothesis, and designing an experimental plan (study) to address the question.
5. Generate and store data in an effective format and then select and perform appropriate statistical calculations to analyze data.
6. Interpret visual representations of data (i.e. tables, graphs). 7. Utilize scientific principles and inductive reasoning to translate and interpret results.
7. Present aspects of the scientific method, including experimental design and results, in an accurate and professional manner.
8. Outline the processes related to manuscript reviews, writing, authorship, and journal impact factors.
9. Demonstrate a clearer understanding of possible careers and how acquired skills and interests match up to a given career path

Course Content

Statistical data and their presentation. Descriptive statistics - Measures of central tendency and dispersion. Probability and probability distributions. Discrete and continuous random variables. Hypothesis testing. Science and the scientific method. Steps involved in scientific investigation. Sampling theory, sampling techniques. Levels of measurement. Alternative sources of data. Design of data collection instruments - questionnaires, interview schedules, etc. Participatory

appraisal techniques. Data analysis - Descriptive and inferential statistics. Special problems of data collection and analysis in Nigeria.

Mode of Course Delivery

This course will be delivered through lectures, training on use of some statistical software, assignments, brainstorming sessions, crossover discussion, field survey and presentation.

Assessment Methods:
The assessment will be by continuous assessment and written examination.

Continuous Assessment: There will be at least two continuous assessment which will account for 40% of the evaluation.

Final Exam: There will be one final exam. The exam covers material from class and the text as well as any readings by the students. The exam will generally consist of a few brief essay questions and a few problems to be solved. The exam will account for 60% of the total score.

2) FVC 712 Managerial Economics in Agribusiness (2 Units)

Course Objectives

The general objective of this course is to provide students with a basic methods and principles of economic analysis and analytical tools that can be used in managerial decision making processes within various organizational settings such as business firms, not-for-profit organizations and government agencies. It enables students to identify problems and opportunities, examine alternative courses of actions, and make optimal choices. After completing this course, students will be able to:

- Apply economic theory and methods to business and administrative decision making;
- Explain how prices get determined in markets, how market participants benefit in the form of consumer surplus and producer surplus, and what are the consequences of government intervention;
- Measure the responsiveness (Elasticities) of consumers' demand to changes in the different determinants of demand and the importance of these elasticities in decision making;
- Explain the different costs of production and how they affect short run and long run decisions, describe economies and diseconomies of scale, and discuss break even analysis;
- Apply how game theory can be used in explaining business decisions;

- Explain what an externality is and the measures to be taken in order to internalize externalities.

Course Content

The Fundamentals of Managerial Economics; Definition of Economics and Managerial Economics, Firms and Managerial Objectives, Managerial Tools of Economic Analysis, Principles of Managerial Economics, The Fundamentals of Managerial Economics; Applications of Demand and Supply Theories; Production and Costs in Managerial Decision Making; Market Structures; Price and Pricing Strategies; Externalities, public goods, and the role of Governments.

Assessment Methods:

Continuous Assessment: There will be at least two continuous assessment which will account for at least 40% of the evaluation.

Final Exam: There will be one final exam. The exam covers material from class and the text as well as any readings by the students. The exam will generally consist of a few brief essay questions and a few problems to be solved. The exam will account for 60% of the total score.

3) FVC 713 Agricultural Marketing and International Trade (2 Units)

Course Description

Definition and concepts of market, marketing, buyer and seller market, agricultural marketing, business philosophies, market channels, market information system, challenges in agricultural marketing, link between agriculture and food industry, building concepts of market oriented business specialization of agriculture, market liberalization, market research, analyzing market integration, and role of gender in agricultural marketing. Students will be equipped with classical and neoclassical theories underlying international trade, international trade policy instruments, and emerging issues in trade, factor mobility, and the general equilibrium models; cross border trade and implications, and regional integration and globalization.

Course Objective

The general objective of this course is to equip students with knowledge, skill and attitude that enable them to support the efforts to produce market oriented agricultural goods for sustainable profit and consumer satisfaction; it is also provide students with the concepts of international trade giving emphasis on classical and neoclassical theories as well as theoretical and analytical tools used in analyzing international trade.

The specific objectives:
After completion of this course, students will be able to:

- Assess challenges in agricultural product marketing and its linkage with food industry
- Identify profit share of market participants through analysis of marketing costs and margins under different channels
- Identify agricultural business opportunities
- Analyze consumers in agricultural markets
- Explain fundamental concepts underlying international trade;
- Explain the factors that make international trade to be an important policy agenda;
- Analyze agricultural trade policy problems;
- Provide arguments for and against protectionist policies with the motives, types and institutional set-up of economic integration; and
- Compare and contrast the applications of different trade theories in Ethiopian context.

Course Content

Definition and Concepts of Market and Marketing, Market Features and Characteristics of Different Market (Buyer and Seller), Economic Role of Price Under Different Market Systems (Market Based, Mixed and Command Economy); Agricultural Market Business Philosophies, Challenges and Approaches; Market Liberalization; Market Research; Analyzing Market Integration; Market Information System; The Theoretical Concepts Underlying International Trade; International Trade Policy Instruments; International Trade and Developing Economy; Emerging Issues in Value Chain and Agricultural Trade.

Mode of Course Delivery

This course will be delivered through lectures, case studies, assignments, brainstorming sessions, crossover discussion, projects, presentation, and demonstration.

Assessment Methods

Continuous assessment; this will be based on active participation in discussions of case based tasks, assignments, presentations, and will account for at least 40% of the evaluation. The remaining goes for final exam.

4) FVC 714 Agribusiness Value Chain Management: Principles and Practice (Credit Hrs: 3)

Course Description

The course will provide learners with grounded knowledge and skills of value chain management; value chain analysis and management; enabling environment for value chain development, chain

governance and business ethics.

Course Objective

This course aims to equip learners with concepts and principles of value chain to diagnose sustainable value chains and identify the best intervention strategies. It also aims at discerning the functions and relationships among actors to build robust value chain systems.

After completion of this course, students will be able to:

- Explain concept of value chain and Value Chain Approach
- Examine the underlying assumptions, principles, characteristics and importance of the Value Chain Approach
- Distinguish between the various approaches in identifying the challenges and opportunities for Value Chain Development.
- Identify value-adding activities in the chain.
- Analyse and map commodity value chain
- Apply different value chain approaches and principles for the improvement of the chain
- Evaluate chain governance to facilitate chain formation
- Identify the critical/leverage points among the constraints in Value Chain Development.
- Identify active, innovative and leading change agents in Value Chain Development.
- Develop participatory approach for Value Chain Development.
- Develop intervention strategies for addressing identified constraints and utilize prevailing opportunities,
- Monitor and evaluate the value chain process.
- Assure quality and safety along the value chain
- Explain the importance of policy issues in the value chain approach

Course Content

The Value Chain Approach: Concepts, Importance, and Principles; Value Chain Analysis; Value Chain Development: Challenges, Opportunities and Intervention Strategies; Enabling Environment for Value Chain Development; Value Chain Governance and Business Ethics.

Mode of Course Delivery

The teaching learning process of the course will mainly depend on lectures, presentations, discussions and group work to enhance student centeredness and competence. The instructor is expected to use case studies, simulations, videos to support practical learning and contribution of the students. Learners will be given a scenario on existing value chain so that they will develop value chain by identifying best strategies, process, and environment. Moreover, learners will be asked to form different groups and act as different actors within the value chain, and practice the

role of facilitator and negotiator.

Assessment Method
Continuous Assessment (Assignment-scenario analysis, tests, presentations will account for 40% of the evaluation, and the remaining is final exam.

5) FVC 715 Entrepreneurship and Agribusiness Management (Credit Hours: 2)

Course description
The course is aimed at equipping learners with knowledge and skills in setting up enterprise, identifying the right business idea, understanding basic approach to productive problem solution, understanding the various tools and strategies such as the business model canvas, agribusiness organization and management. The course covers process of setting up an enterprise, identifying the right business idea, creative approaches and strategies to aid the process of creating an enterprise, introduction to agribusiness management; small business systems; organizational behavior; strategic human resource management; consumer behavior; marketing law and management; change management; farm business management; and resource mobilization and budgeting.

Course Objectives:
At the end of this course, learners will be able to:

- Identify Basic Personal Entrepreneurial Characteristics
- Understand the process of setting up an enterprise
- Identify the right business idea
- Explain the creative approaches and strategies for creating an enterprise
- Explain agribusiness management
- Evaluate organizational behaviour
- Apply strategic human resource management
- Identify consumer behaviour
- Explain marketing law
- Manage change
- Develop budget for agribusiness organization.

Course Content
Who is an Entrepreneur?, Personal Entrepreneurial Characteristics; Problem Solving Cycle; Identifying Opportunities and the Right Business Ideas; Creative Approaches for Enterprise creation; Design Thinking, Prototyping; Introduction to Agribusiness Management; Small Business and Farmers Cooperatives; Organizational Behavior; Strategic Human Resource

Management; Consumer Behavior; Marketing Law and Management; Change Management; Farm Business Management; Resource Mobilization and Budgeting.

Mode of Course Delivery

This course will rely on a variety of learning methods. Students-led discussions and presentations will be combined with instructor facilitated learning experiences and lectures. Some specific methods include lectures, reading assignments, group discussions, and case studies.

Assessment Methods

The assessment methods to be employed include continuous assessment (Assignments, group work and presentations) at least 40% of the evaluation and the rest 60% is final exam.

6) FVC 716 Gender in Value Chain Management (Credit Hours: 3)

Course Description

The course equips learners with concepts of gender in relation to value chain management. It advocates for gender sensitive value chain development and provides input on how to make value chain interventions promote women's empowerment, gender equity for improving chain performance. The course also discusses how development organizations and private entrepreneurs could find ways to improve the position of women in value chains - especially small-scale women farmers and primary processors.

Course Objectives

At the end of this course, students will be able to:

- Explore the concept of gender in line with value chain management
- Analyze gender roles and gender equity in value chain management
- Explain gender analysis frameworks/tools
- Mainstream gender in value chain development
- Explain policy concerns in relation to gender dimension

Course Content

The Concept of Gender; Poverty and Gender Inequality in Agriculture; Gender Division of Labour; Practical and Strategic Gender Needs; Facilitating Gender Equitable Value Chain Development; Gender Analysis Framework / Tools; Gender mainstreaming in value chain management; Policy Issues Related with Gender.

Mode of Course Delivery

Interactive lecture, reading assignment, presentation, educational excursions to women owned

small scale enterprises, government and non-government offices working in the area of gender and development issue.

Assessment Methods
Continuous assessment methods (assignments students analyze for a firm/ company the current gender situation and write report of their findings, their personal opinion on gender policy and purposes in general, their recommendation for this firm based on their findings and opinion, group discussion/work, quiz, test) which accounts for at least 40% of the evaluation and the remaining will be final exam.

7) FVC 717 Quantitative Techniques in Agribusiness (Credit Hours: 2)

Course Description
This course deals with various quantitative techniques which are applicable in economic and managerial decision problems. It specifically deals with various programming tools like linear programming, integer programming, non-linear programming; network models; transportation models; queuing theories; inventory control models; brief definitions of important statistical terms such as random variables, probability density function and normal distribution; regression analysis; common problems encountered during regression analysis (specification errors, Heteroskedasticity, Autocorrelation, endogeneity and Multicollinearity) along with potential solutions to these problems. It also provides students with basic understanding of simultaneous equation models. The course will expose students to computer-based software which are useful in analyzing various tools and models. Moreover, this course is designed to provide the necessary foundations and skills to conduct empirical research in Agribusiness and Value Chain Management.

Course Objectives
The general objective of this course is to enhance graduates' analytical, computational and problem solving skills through application of quantitative technique in the area of Agribusiness and Value Chain Management.

Specific Objectives
After completing this course, students will be able to:

- Apply important analytic methods in decision-making, recognize their assumptions and limitations.
- Analyze decision problems employing formal models.
- Formulate econometric models in an empirically testable form
- Estimate and test econometric relationships with observed data
- Apply econometric tools for prediction and policy decisions

- Analyze and interpret quantitative socioeconomic data
- Assess cause and effect relationship of socioeconomics variables.

Course Content

Introduction to Quantitative Techniques; Linear Programming (Graphical and Simplex Methods); Integer Programming and Goal Programming; Non-Linear Programming; Transportation Models and Solution Algorithm; Waiting Lines and Queuing Theory; Inventory Control Models; Introduction to Statistical Concepts; Multiple Linear Regression Models and OLS Estimators - OLS Procedure, Estimators, Parameters and Interpretation, Prediction, Interval Estimation and Hypothesis Testing; Non-Linear Regression Models, (Probit, Logit, Tobit, Heckman Two Stage Procedure, Cragg's Double Hurdle Models); Econometric Problems (Heteroskedactity, Autocorrelation, Multicollinearity, Specification Error, Endogeneity); Simultaneous Equation Models; Econometric Analysis of Time Series Data (Stationary And Non-Stationary).

Mode of Course Delivery

The course will be delivered through lectures, case studies, assignments, brainstorming sessions, presentation, computer based exercises and term paper.

Specific Resources:

- Computer lab for statistical software usage
- Manual for statistical soft-wares like STATA, SPSS, etc
- Data for practical exercises.

Assessment Method

Continuous assessment: this will be based on active participation in discussion of case based tasks, assignments, presentations, and will account for at least 40% of the evaluation. The remaining goes for final exam.

8) FVC 718 Fisheries and Aquaculture Value Chain Management (1 Unit)

Course Description

The course deals with value chain analysis which describes the activities that take place in fishery and aquaculture businesses and relates them to the competitive strength of the business. The course further emphasizes the understanding the nodes of the value chain and its stakeholders. Drivers and governors of change on the demand composed of several key factors, such as demographics, consumer preferences, buyer specifications, regulatory change, and market access. Furthermore, the course deals value chains analysis which provides opportunities to identify strategic windows

for each node of the chain. The value chain analysis also facilitates the maximum utilization of resources while achieving the sustainability in resource use.

Course Objectives

This course aims to equip learners with concepts and principles of fisheries and aquaculture value chain for fish and fish products in local and global ecosystem. Identify actors, drivers, governance, regulatory and markets for best value addition. It also aims at identifying various value additions for fish and fish products. It will enhance the capacity of learners on physical, chemical, biochemical analyses and quality assessment and assurance.

Specific Objectives

At the end of the course, learners will be able to;

- Explain the importance of fish-diversity, abundance, and nutritive quality.
- Understand the concept of fish value chain management.
- Identify global fishery value chains - types of global fishery value chains fish production; processors; distributors and traders; retailers; fish consumption; domestic market.
- Explain the international market PESTLE analysis *etc.*
- Identify drivers and governors change on fish demand - demographics; consumer preferences; buyer specification; regulatory change; market access; distribution and retailing; economic growth trends. Drivers and governors change on fish supply - product/ market conditions, procurement practices.
- Undertake value added fish products - mince or mince-based products; battered and breaded or coated products; surimi-based products.
- Explain the concept of food loss and food waste (FLW) along the value chains.
- Describe quality assessment and assurance - proximate analysis, organoleptic assessment, Hazard Analysis and Critical Control Point.

Course Content

Importance of fish-diversity, abundance, and nutritive quality. Fish production and management - seed to table size. Concept of fish value chain management. Global fishery value chains - types of global fishery value chains fish production; processors; distributors and traders; retailers; fish consumption; domestic market; International market PESTLE analysis *etc.* Drivers and governors change on fish demand - demographics; consumer preferences; buyer specification; regulatory change; market access; distribution and retailing; economic growth trends. Drivers and governors change on fish supply - product/ market conditions, procurement practices. Value added fish products - mince or mince based products; battered and breaded or coated products; surimi based products. Food loss and food waste (FLW) - key causes of FLW in capture fisheries, aquaculture,

processing and storage, transportation, wholesale, transport, retail and consumption. Quality assessment and assurance - proximate analysis, organoleptic assessment, Hazard Analysis and Critical Control Point.

Mode of Course Delivery

Interactive lectures, group discussions and presentations, term paper, practical, field and company visits: students will visit farms, processing companies, markets and identify the possible loss types, factors affecting product quality, post-harvest handling methods by chain actors.

Assessment Method

Students will be assessed on continuous bases and summative exam. The continuous assessment consists of term paper writing, presentation, tests, practical and field reports. The minimum total weight for the elements in continuous assessment is 40%. The rest will be covered by final exam.

9) FVC 719 Diffusion of Innovation (1 Unit)

Course Description

Diffusion of innovation is a special type of communication, in that the messages are concerned with new ideas which will accord the student the knowledge of how to transfer innovation to a place where such does not exist. More so, theory of diffusion helps student to understand how innovations are diffused in a social system. It has therefore become imperative for all stakeholders in the agricultural sector to understand how innovation flows from one social system to another, thereby transforming agriculture through agricultural extension in the country. The course will also expose students to the basic elements of innovation diffusion in order to improve productivity and standard of living.

Course objectives:

At the end of this course, students will be able to: Explain the concepts of the diffusion process;

- Discuss the elements of diffusion of innovation;
- Assess the basic knowledge of innovation diffusion in rural communities;
- Identify the various adopter categories and stages of adoption;

- Acquaint learners with the concepts of innovativeness;
- Discuss diffusion and adoption of agricultural innovation; and
- Distinguish between the various theories of diffusion as applied to agricultural extension.

Course content

Concept of diffusion process. Elements of diffusion of innovation. Diffusion of an innovation in a community. Adopter categories. Innovativeness of innovation. Stages of innovation adoption. Diffusion process and communication/Channels of diffusion. Diffusion process and the social system. Characteristics of innovation. Role of local leaders in diffusion process. Theories of diffusion. Critiques of the diffusion theories. Roles of Community Based Organizations in diffusion process. Diffusion and adoption of agricultural innovation. Adoption process. Acceptance - rejection of innovation diffusion. Factors influencing adoption of innovation. Innovation – Decision types.

Mode of Course Delivery

The course will be delivered through lectures, case study, assignments, brainstorming sessions, discussion, term paper and presentation.

Assessment Methods

There will be at least two continuous assessments which will account for 40% of the evaluation while the remaining 60% goes for final exam.

Second Semester

1) FVC 720 Graduate Scientific Writing and Seminar Presentation (1Unit)

Course Description

The course is expected to cover topics related to current issues and advances in agribusiness and value chain management such as policies, technologies, economic, social and environmental feasibilities as well as challenges and opportunities at national and international levels.

Course Objectives

At the end of this course, students will be able to:

- Review and critically analyze scientific articles and papers related to advances in Agribusiness and value chain management

- Present scientific papers and with appropriate delivery methods using visual aids such as overheads, slides, posters and other computer generated techniques
- Prepare seminar paper on current issues of Agribusiness and value chain.

Assessment Methods

Preparation and presentation of seminar paper on current issues of agribusiness and value chain where different stakeholders available; and it accounts 100% of the evaluation.

2) FVC 721 Crop Value Chain Management (3 Units)

Course Description

This course is designed to address the general principles of crops production and production systems; supply chains in major crops; post-harvest handling of crop/plant products; characteristics of crop products as it related to post-harvest losses; significance of post-harvest losses; major causes of crop products deterioration after harvest; development of post-harvest handling systems; major components of post-harvest handling; the role of women in post-harvest handling of crop products; importance of crop products processing and preservation; principles of crop products processing and preservation; processing and preservation techniques of major crop products; economic feasibility, social acceptability and environmental friendliness of processing and preservation of crop products; the role of women in crop products processing and preservation, quality controlled logistics.

Course Objectives

At the end of this course, students will be able to:

- Explain the general principles of crops production and production systems and supply chains in major crops
- Describe the changes (structural, physiological and bio-chemical) taking place in crop products after harvest
- Assess and estimate post-harvest losses using different estimation methods and propose methods for minimizing the losses
- Identify economically feasible post-harvest operational facilities and manage their efficient and effective utilization
- Monitor the implementation of safety measures and quality assurance procedures in harvesting, transporting, storage, grading and standardization and marketing of crop products at national and international levels.
- Apply the basic principles of processing crop products to value added food commodities

- Explain the different processing methods for various crop products
- Apply different crop products preservation methods
- Assess the economic feasibility, social acceptability and environmental friendliness of different crop products processing and preservation
- Analyse the role of women in crop products processing and preservation

Course Content

General Principles of Crops Production and Production Systems; Supply Chain in Major Crops; Post-Harvest Losses (Types of Post-Harvest Losses (Bio-Chemical, Physical/Structural, Physiological), Causes of Post-Harvest Losses (Temperature, Moisture, Humidity, Storage Diseases And Pests Etc.); The Role of Post-Harvest Handling of Crop Products in Food Security; Post-harvest Handling of Crop/Plant Products; Handling of Major Horticultural Crop Products ((Vegetables, Fruits, Root And Tuber, Ornamental, Coffee, Tea And Spices) (Harvesting Stage and Methods, Transportation, Pre-Storage Treatment, Safety and Quality Control, Quality Standards and Systems , Storage, Packaging, Preparation For Marketing)); Processing and Preservation of Crop/Plant Products; Major Horticultural Crop Products (Vegetables, Fruits, Root and Tuber, Ornamental, Coffee, Tea and Spices); Major Field and Industrial Crops (Cereals, Pulses, Oil Crops, Sugarcane, Cotton and Tobacco).

Method of Delivery

Interactive lectures, group discussions and presentations, term paper, field and company visits: students will visit crop farms and processing companies and identify the possible loss types, factors affecting product quality, post-harvest handling methods by chain actors.

Assessment Methods

Students will be assessed on continuous bases and summative exam. The continuous assessment consists of term paper writing, presentation, tests, and field reports. The minimum total weight for the elements in continuous assessment is 40%. The rest will be covered by final exam.

3) FVC 722 Livestock Value Chain Management (3 Units)

Course Description

This course tries to address the general principles of livestock production and production systems; livestock supply chains; post-harvest handling of livestock/animal products; characteristics of livestock/animal products as it relates to their loss; major causes of deterioration in livestock/animal products; development of livestock products handling systems; major components of livestock products handlings; efficient and effective utilization of animal product

processing facilities; the role of women in livestock products handling; importance of processing and preservation of animal/livestock products; principles of livestock/animal products processing and preservation; techniques of processing and preservation of livestock products; economic feasibility, social acceptability and environmental friendliness of processing and preservation; the role of women in livestock products processing and preservation.

Course Objectives:

At the end of this course students will be able to:

- Explain the general principles of livestock production and production systems and livestock supply chains
- Describe the changes (structural and bio-chemical) in agricultural products
- Assess and estimate post-harvest losses using different estimation methods and propose methods for minimizing the losses
- Identify economically feasible animal product processing facilities and manage their efficient and effective utilization
- Monitor the implementation of safety measures and quality assurance procedures in transporting, storing, grading and standardization and marketing of livestock/animal products
- Apply the basic principles of processing animal/livestock products to value added food commodities
- Explain the different processing methods for various livestock/animal products
- describe different livestock/animal products preservation methods
- Assess the economic feasibility, social acceptability and environmental friendliness of different livestock/animal processing and preservation
- Analyse the role of women in livestock products processing and preservation.

Course Content

Basics of Livestock Production; General Principles of Livestock Production; Livestock Production Systems in Nigeria; Livestock Supply Chains; Characteristics of Livestock/Animal Products; Handling of Animal Products (Poultry and Poultry Products Handling (Transporting, Standardization, Packaging, Storage; Safety , Quality Control and Quality Control Logistics, Quality Standards and Systems; Milk and Milk Product Handling (Transporting, Standardization, Packaging, Storage; Safety and Quality Control, Quality Standards and Systems). Meat and Meat Product Handling (Chilling, Transporting, Deboning, Packaging, Storage; Safety and Quality Control, Quality Standards and Systems); Fish Handling (Transporting, Packaging, Storage, Quality Control); Honey and Honey Product Handling (Refining, Transporting, Packaging, Storage, Safety and Quality Control, Quality Standards and Systems); The Role of Animal Product

Processing and Preservation in Food Security; The Role of Gender in Handling, Processing and Preservation of Animal Products; Principles of Processing and Preservation of Animal Products; Processing and Preservation Techniques of Livestock/Animal Products; Economic Feasibility, Social Acceptability and Environmental Friendliness of Processing and Preservation of Animal/Livestock Products.

Mode of Course Delivery

Interactive lecture, group discussion and presentations, term paper, field and company visits: students will visit different livestock farms, different livestock products processing industries and super markets and identify the possible loss types, factors affecting product quality, postharvest handling methods by chain actors.

Assessment Methods

Students will be assessed on continuous bases and summative exam. The continuous assessment consists of term paper writing, presentation, tests, and field reports. The minimum total weight for the elements in continuous assessment is 40%. The rest will be covered by final exam.

4) FVC 723 Investment Analysis and Business Plan Development

Course Description:

The course is aimed at equipping learners with the knowledge and skills that help to analyze investment in agribusiness and develop business plan. The detail description of this course is introduction to Investment analysis; Investment environment; Investment feasibility and Business plan development.

Course Objectives

At the end of this course, learners will be able to:

- Explain role and scope of investment
- Identify investment opportunities
- Analyze investment environment
- Evaluate investment feasibilities
- Develop business plan

Course Content

Introduction to Investment Analysis; The Role and Scope of Investment; Investment Opportunities; Investment Environment; Investment Markets and Transaction; Investment Information And Plans; Steps in Investment Analysis; Investment Feasibility; Measuring Investment Return and Risk; Financial (Payback Method, Rate of Return, Net Present Value,

Internal Rate of Return), Economic and Social (Gender equity), Environmental. Business Plan (Concepts of Entrepreneurship, Financial, Statements and Ratio Analysis, Pillars of Business Plan, Business Plan Development).

Mode of Course Delivery

The course will be delivered through lectures, case studies, assignments, presentation and term paper on developing business plan.

Assessment Methods

The learners will be assessed in two ways, continuous assessment at least 40% and final examination. The continuous assessment may include: assignment on financial and its ratio analysis, developing business plan for investments, test, seminar, group work.

5) FVC 724 Agribusiness Financial and Risk Management (2 Units)

Course Description

This course will equip students with knowledge and skill of financial and risk management in Agri-business and value chain. The course covers issues in financial management; value chain finance; credit management; and risk management.

Course Objective

After completion of this course, students will be able to:

- Explain concepts of financial and risk management
- Develop financial statements and conduct its analysis
- Analyze credit markets and information flow
- Manage credit risk
- Manage value chain finance
- Evaluate agricultural credit policies

Course Content

Financial Management (Role, Nature and Scope of Financial Management, Basic Economic Principles Applied to Financial Management, Type of Finance: National and International Finance, Tasks of Finance Manager, Information Flow, Financial Analysis), Planning and Control; Value Chain Finance; Credit Management (Sources of Agribusiness Credit, Credit Analysis and Performance Based Lending, Credit Instruments and Legal Documentation, Credit Scoring and Risk Rating, Information Asymmetry and Credit Risk Management, Formulating Credit Proposal, Agricultural Credit Policies, Credit Management in Value Chain, Role of Gender in Credit Management), Risk Management (Concepts of Risk and Uncertainty, Types of Risk, Risk Measurements, Risk Attitudes, Risk Minimization and Decision Rules).

Mode of Course Delivery

The teaching learning process of the course will mainly depend on lectures, presentations on scenario analysis, discussions and group work to enhance student centeredness and competence orientation. The instructor is expected to use case studies for enhancing practical learning.

Assessment Method

Continuous assessment constitutes at least 40% of the evaluation and the remaining proportion of evaluation will be final exam.

6) FVC 725 Business Law (2 Units)

Course Description

This course introduces the student to the legal and ethical framework of business. Contracts, negotiable instruments, the law of sales, torts, crimes, constitutional law, the Uniform Commercial Code, and the court systems are examined.

Course Objectives

Upon completing the requirements for this course, the student will be able to:

1. Identify legal and ethical issues that arise in business decisions and the laws that apply to them.
2. Identify the elements of a contract.
3. Describe the structure of Nigeria court system.
4. Identify laws, conditions and regulations in national and international work environments

Course Content

Hire purchase: its meaning and formation, the right and obligations of the parties. Contract of employment; the nature and formation of contracts of employment, rights and duties of employers and employees, termination and dismissal, and remedies for breach of employment contract, redundancy. Insurance contract:- Its meaning, features and outline of concepts and principles; insurable interest, premium, indemnity and fixed sum insurance, subrogation and contribution. Assignment of policy, partnership;- Definitions, nature and types; general and limited partnerships; formation and articles of partnership, types, rights and duties of partners; relationship of partners with each other and with third partners, dissolution of partnership, Banking and Negotiable instruments:- The legal relationship of banker and customer and their mutual duties; the meaning and characteristics of negotiable instruments (Bill of Exchange, Cheques, promissory notes, etc.); Right and duties of the parties to a Bill of Exchange including the rights and duties of the holder in due course; Cheques and their crossing. Trust and Estate. Administration:- Appointment, duties, powers, rights and accounts of trustees, executors and administrators. Bankruptcy:- Issue of receiving order, appointment duties and powers of official receiver and trustee in bankruptcy, statement of affairs and deficiency.

Mode of Course Delivery

This course will be delivered through lectures, assignments, brainstorming sessions, crossover discussions and presentations.

Assessment Method

Continuous Assessment: There will be at least two continuous assessment which will account for 40% of the evaluation.

Final Exam: There will be one final exam. The exam covers material from class and the text as well as any readings by the students. The exam will generally consist of a few brief essay questions and a few problems to be solved. The exam will account for 60% of the total score.

7) FVC 726 Food Processing and Preservation (2 Units)

Course Description

This course covers principles and procedures in food processing and preservation. An overview of plant and animal foods, and their processed products are emphasized. The effects of food processing and preservation on food quality are discussed.

Course Objective

The course will provide learners with sound knowledge of the principles and methods involved in food processing and preservation to promote food and nutrition security as well as food safety in Nigeria.

At the end of this course, students should be able to:

- Describe different properties of foods and principles of food processing.
- Understand how to handle and prepare raw foods prior to food processing.
- Understand physical and chemical changes occurring in foods during handling.
- Explain various food additives used in food processing and preservation,
- Understand principles and techniques involved in food processing and preservation,
- Describe the production of plant and animal processed foods,
- Explain the effect of processing and preservation methods on food quality,
- Understand how to ensure the safety of preserved foods.

Course Contents

Properties of foods. Raw material handling and preparation. Changes occurring in foods during handling. Size reduction of foods. Separation processes and extraction. Principles of food processing. Basic methods of food processing. Effects of food processing methods on food quality. Food additives. Food packaging. An overview of plant and animal foods as well as their processed products. Principles of food preservation. Food preservation techniques such as thermal processing, low temperature preservation, fermentation, dehydration, evaporation and concentration, high pressure processing and food irradiation. Principles and application of canning of foods. Food safety aspects of food preservation.

Mode of Course Delivery

This course will be delivered through lectures, group presentation, demonstration and practical session.

Assessment Methods

This will comprise of continuous assessment and final examination.

Continuous Assessment: The students will be given two continuous assessments and practical which will account for at least 40% of the total course.

Final Examination: At the end of the semester, the students will be examined. The final examination covers the course synopsis and the guidelines provided by the University Postgraduate School will be adopted in setting of standard questions. The examination will account for 60% of the total score.

8) FVC 727 Livestock Animal Production (1 Unit) (Elective)

Course Objective

The course objectives are to:

1. Explain the management and structure of poultry, rabbits, cattle, sheep and goat Production systems;
2. Explain the structure of poultry, rabbit, dairy and beef, mutton and chevon enterprises;
3. Explain the basics of traditional and modern poultry, rabbit, cattle, sheep and goat enterprises;

4. Explain feeding and housing need of poultry, rabbit, cattle, sheep and goats;
5. Explain health challenges of poultry, rabbit, cattle, sheep and goats and traditional practices of maintaining good stock;
6. Understand how to select poultry, rabbit, cattle, sheep and goat for breeding; and
7. Explain marketing and nature of value chain in poultry, rabbit cattle, sheep and goat Production.

Learning Outcomes

Students are expected to acquire knowledge of:

1. Attributes, problems and prospects of poultry, rabbit, cattle, sheep and goats in Nigeria;
2. Physical identification of poultry, rabbit, cattle, sheep and goat;
3. Identifying and describing the various enterprises (egg production, meat production, milk production, etc.); and traditional and modern management practices peculiar to each species and enterprise in each in terms of housing and equipment needs; feeds and feeding requirements; health and health management practices; reproduction management/regulation; and marketing and the economics of these enterprises.
4. Poultry, Ruminant products and importance of their value chains.

Course Contents

Poultry, rabbit, Cattle, Sheep and Goat production and management systems: Problems and prospects in Nigeria. Basic differences between broiler and layer birds, different broiler species, different layer species, sheep and goats; Indigenous and exotic breeds of beef and dairy cattle, sheep and goat; poultry. Egg production system and enterprises, Broiler production system and enterprises, Dairy production system and enterprises.; Egg, Beef, Mutton and Chevon production systems and enterprise development; Selection and Management of breeding stock, growing and young animal, Housing, equipment and feeding principles of poultry, rabbit, cattle, sheep and goats. Health management of ruminant animals. Ethno-veterinary practices in poultry, rabbit, cattle, sheep and goat Production; Marketing of animals and their products; structure of poultry, rabbit, cattle sheep and goat value chain.

Mode of Teaching:

Lectures (online and physical, practical and group studies).

Mode of Assessment:

Continuous assessment (30%); exams (60%); practical (10%)

9) FVC 728 Horticultural and Ornamental Crop Production (1 Unit)

Course Content:
Origin and distribution of major vegetable and fruit crops: nursery management: cultivation practices in Nigeria and elsewhere, cultivars, propagation, manures and fertilizers, irrigation, drainage, weed control and crop protection practices: harvesting and processing: uses and quality aspects of important vegetable and fruit crops. The importance, classification and economic potentials of ornamental horticulture; establishment and management; propagation and nursery; establishment and maintenance of trees, shrubs and perennial herbs, annual and biennial flowers, cut flowers, principles of landscaping; planning public parks, school garden and house compound garden; pot plants; bonsai and topiary.

Practical; Nursery practice, identification of ornamental plants, training and trimming of shrubs, hedges; sketches of landscape designs; handling and display of cut flowers

Course Objectives:

The objectives are to:

- Provide students with a solid understanding of the fundamental principles of horticulture and the science behind plant growth, development, and propagation.
- Educate students on the various horticultural crops and ornamental plants, their specific requirements, and the methods for their cultivation, management, and post-harvest care.
- Provide students with skills in landscape design, installation, and maintenance, ensuring they can create aesthetically pleasing and functional outdoor spaces using ornamental plants.
- Equip students with the knowledge of starting and running a horticultural or ornamental crop production business, including marketing, financial management, and business planning.

Mode of Course Delivery: This course will be delivered through lectures, case studies, assignments, brainstorming sessions, crossover discussions, projects, presentations, and demonstrations.

Assessment Methods:
Continuous Assessment: There will be at least two continuous assessment which will account for at least 40% of the evaluation.

Final Exam: There will be one final exam. The exam covers material from class and the text as well as any readings by the students. The exam will generally consist of a few brief essay questions. The exam will account for 60% of the total score.

Third Semester

1) FVC 700 Thesis Research (6 units).

This is the final year research project intended to test the student's skill in analyzing and writing research report based on an empirical or library study of a specific subject matter on Agricultural Value Chain of a named commodity. Thesis writing will be carried out by the students under supervision. A supervisory team comprising of a Major and co-supervisor (s) will be constituted for each candidate by the Postgraduate Departmental Board. The research should be problem solving in nature. The goal is to develop in the students the ability to identify problems related to value addition on agricultural commodities and take informed decisions. The students' thesis will be typed and bound in a prescribed format.

PROJECT CHAIN

Short Project Activity Report

University of Kara (UK) / University of Lome (UL)

Triesdorf, April 2024

Key activities

- Equipment procurement: done and waiting for the delivery
- Internal meetings within each university to assess to progress of activities
- Presently focusing on the Development of a curriculum of the Master program at the UK (Several online meetings)

Project information

Online meeting for curriculum development

Project information

- Key deliverable of the project: Development of a Master program at the UK

CHAIN PROJECT

IMPLEMENTING A MASTER PROGRAM IN FOOD VALUE CHAIN MANAGEMENT IN TOGO (AT UK)

Which Master for UK (Togo)?

- Food tech? Similar program at BSA level running at UL (BSA in Food Tech)

- Challenges faced in terms of storage of agricultural products?
  - Post-harvest issues with crops (fruits, vegetables, and tubers, etc...)
  - Lack of experts in agricultural products storage
  - Lack of real interaction between FVC actors

Which Master for UK (Togo)?

Master program that deals with

Storage and processing of agricultural products

The Master's study program will build on Bachelor's degree programs (Food Tech, Agronomy, etc....)

Program justification

- Post harvest operations of agricultural products which involve handling, processing and storage is essential in agricultural value chain
- Knowledge about design of equipment and process for all the postharvest operation is essential
- Thus it is essential any graduate of agricultural – FVC – has a sound knowledge of the technics, processes and materials for storage of agricultuiral products

Curriculum

Master program that deals with

Storage and processing of agricultural products

- What are the skills needed ?
- What are the challenges in the implementation of this Master program?

Objective

Enhance FVC management in Togo through the development of practical-oriented Master program in Storage and processing of agricultural products

Drafted Curriculum

Semestre 1 : Practical Semester				
Intitulé de l'UE (Modules)	**ECU (Sub-Modules)**	**Code UE**	**Crédit**	**Vol. Horaire**
Placement			15	
Science of Raw Materials and Food Value Chain Management	Introduction to Science of Raw Materials		2	
	Introduction to Food Value Chain Management		3	
Physiology and Post-harvest handling of agricultural products	Supply chains and transport networks of agricultural products		3	
	Post-harvest Physiology		2	
Research methods in the Food and AgriFood sectors	Experimental desin		3	
	Applied Biostatistics		2	
Total			**30**	

Drafted Curriculum

Semester 2				
Intitulé de l'UE (Modules)	**ECU (Sub-Modules)**	**Code UE**	**Crédit**	**Vol. Horaire**
Human Nutrition	Nutrition and Health		3	
	Ingredients and food additives		2	
Processing Microbiology and Sensory evaluation	Industrial and predictive microbiology		3	
	Food Sensory evaluation		2	
Food Toxicology	Food toxicology		3	
	Packaging toxicology		2	
Food fortification and Enzyme Technology	Food fortification Technology		2	
	Food Enzyme technology		3	
Agricultural products Safety and Quality standard	Food safety and Quality management		3	
	Waste handling technology		2	
Postharvest storage of agricultural products	Postharvest storage pests,diseases and their management		2	
	Fruits, Vegetables, Root Crops, Tubers, cereals and grains storage		3	
Total			**30**	**300**

Drafted Curriculum

Semester 3				
Intitulé de l'UE (Modules)	**ECU (Sub-Modules)**	**Code UE**	**Crédit**	**Vol. Horaire**
Food economics			3	
Agricultural and Food Marketing and Entrepreneurship	Agricultural and Food Marketing		3	
	Entrepreneurship		2	
Processing of Agricultural products	Processing of vegetable products (Fruits, Vegetables, Root Crops and Tubers Cereals and Grains……)		3	
	Processing of animal products, (Dairy and dairy products, meat and meat products….)		2	
Food process engineering			4	
Principles and practices of food analysis	Principles and practices of food microbial analysis		3	
	Principles and practices of food biochemical analysis		2	
Project Planning and Management			3	
Seminar and Practical work	Seminars on topics related to Processing and storage of Agrifoods, Agricultural Industry Biotechnology, and other related topics		3	
	Practical work		2	
Total			**30**	**300**

Drafted Curriculum

Semester 4				
Intitulé de l'UE (Modules)	**ECU (Sub-Modules)**	**Code UE**	**Crédit**	**Vol. Horaire**
Communication	Scientific writing		3	
	Agribussiness communication		2	
THESIS			25	
Total			**30**	**300**

challenges

- Placement / Internship ?
- Involvement of industries / farmers