

B. Tech. IV year VII Sem Fourth Dean Committee

Name of Course/ Subject: Food Packaging Technology

Course Code: AE403

Course objective:

1. To provide knowledge about importance and scope of packaging and different methods of packaging to retained quantitative and qualitative properties of agricultural crop.
2. To provide the knowledge about different types of packaging materials and its effect on food during packaging.
3. To educate the students about spoilage mechanisms, causes for spoilage and influencing factors (Temperature and Rh) of spoilage during storage of agriculture products.
4. To aware the students about the fundamentals of different types of modern packaging technologies to enhance the shelf life and storability of agriculture products and also provide fundamental thinks about the designing and its developments of innovated packaging system.
5. To provide Knowledge regarding the different packaging systems like Aseptic packaging, Active Packaging, MAP and CAP packaging and its role in storage of crops and other products.

Course Outcome

After completion of course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Student able to know about importance and scope of packaging and different methods of packaging to retained quantitative and qualitative properties of agricultural crop
CO2	Able to understand the basic knowledge about different types of packaging materials and its effect on food during packaging.
CO3	Able to know about spoilage mechanisms, causes for spoilage and influencing factors (Temperature and Rh) of spoilage during storage of agriculture products
CO4	Student able to aware the students about the fundamentals of different types of modern packaging technologies to enhance the shelf life and storability of agriculture products and also provide

CO	<p>PO1 Knowledge of Applied Science in Agricultural Engineering</p> <p>PO2 Knowledge of Basic Engineering</p> <p>PO3 Problem Solving</p> <p>PO4 Field Experimentations</p>	<p>fundamental thinks about the designing and its developments of innovated packaging system.</p>
	<p>Engineering</p> <p>PO6 Knowledge of Irrigation and Drainage Engineering</p> <p>PO7 Knowledge of Farm Machinery, equipments and techniques</p> <p>PO8 Knowledge of Process and Food Engineering equipments and techniques</p> <p>PO9 Knowledge of Renewable Energy Engineering</p> <p>PO10 Environment and sustainability</p> <p>PO11 ETICS</p> <p>PO12 Individual and team work</p> <p>PO13 Communication and skill development</p> <p>PO14 Lifelong learning</p>	
	CO5	<p>Students able to understand the knowledge regarding the different packaging systems like Aseptic packaging, Active Packaging, MAP and CAP packaging and its role in storage of crops and other products.</p>

CO-PO MAPPING:

CO1	Student able to know about importance and scope of packaging and different methods of packaging to retained quantitative and qualitative properties of agricultural crop	3	3	3	2	-	-	-	3	-	3	2	3	2	3
CO2	Able to understand the basic knowledge about different types of packaging materials and its effect on food during packaging.	3	2	3	2	-	-	-	3	-	2	2	3	2	3
CO3	Able to know about spoilage mechanisms, causes for spoilage and influencing factors (Temperature and Rh) of spoilage during storage of agriculture products	3	3	2	1	-	-	-	2	-	3	2	2	2	3
CO4	Student able to aware the students about the fundamentals of different types of modern packaging technologies to enhance the shelf life and storability of agriculture products and also provide fundamental thinks about the designing and its developments of innovated packaging system	3	2	3	1	-	-	-	3	-	3	2	3	2	3
CO5	Students able to understand the knowledge regarding the different packaging systems like Aseptic packaging, Active Packaging, MAP and CAP packaging and its role in storage of crops and other products.	3	3	3	1	-	-	-	3	-	3	2	2	3	2

3: Strong contribution, 2: average contribution, 1: Low contribution

COURSE: Micro Irrigation Systems Design
COURSE CODE: AE408

COURSE OBJECTIVES:

- To understand basic concept of micro irrigation systems, needs and components of micro irrigation system,
- To understand basic concept of design, installation and maintenance of micro irrigation system.
- To understand basic concept of drip irrigation system, Fertigation and frequency and capacity of fertilizer tank.
- To understand the basic concept of quality control in micro irrigation, design and maintenance of polyhouse and benefit and cost analysis.

COURSE OUTCOMES (CO):

After the successful course completion, learners will develop following attributes:

CO-PO MAPPING:

COURSE OUTCOME (CO)	DESCRIPTION
CO1	The Students will learn the basic concept of micro irrigation systems, needs and components of micro irrigation system
CO2	The Students will learn the basic concept of design, installation and maintenance of micro irrigation system.
CO3	The students will learn the basic concept of drip irrigation system, Fertigation and frequency and capacity of fertilizer tank
CO4	The Students will learn the basic concept of quality control in micro irrigation, design and maintenance of polyhouse and benefit and cost analysis.

CO		PO1 Knowledge of Applied Science in Agricultural Engineering	PO2 Knowledge of Basic Engineering	PO3 Problem Solving	PO4 Field Experimentations	PO5 Knowledge of Soil and Water Conservation Engineering	PO6 Knowledge of Irrigation and Drainage Engineering	PO7 Knowledge of Farm Machinery, equipments and techniques	PO8 Knowledge of Process and Food Engineering equipments and techniques	PO9 Knowledge of Renewable Energy Engineering	PO10 Environment and sustainability	PO11 Ethics	PO12 Individual and team work	PO13 Communication and skill development	PO14 Lifelong learning
C01	The Students will learn the basic concept of micro irrigation systems, needs and components of micro irrigation system	3	2	3	2	2	2	3	0	0	1		2	2	3
C02	The Students will learn the basic concept of design, installation and maintenance of micro irrigation system.	3	2	3	2	3	3	2	0	0	2	1	3	3	3
C03	The students will learn the basic concept of drip irrigation system, Fertigation and frequency and capacity of fertilizer tank	2	3	2	3	3	2	3	0	0	3	1	2	2	3
C04	The Students will learn the basic concept of quality control in micro irrigation, design and maintenance of polyhouse and benefit and cost analysis.	2	2	2	2	2	3	2	0	0	3	1	3	3	3
3: Strong contribution, 2: average contribution, 1: Low contribution															
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COURSE: Watershed Planning and Management
COURSE CODE: AE409

COURSE OBJECTIVES:

- To understand basic concept of watershed management, characteristics and factors affecting watershed management.
- To understand basic concept of hydrological data for watershed planning and hydraulic design of earthen embankment s and diversion structures.
- To understand basic concept of sediments yield and their measurement and design of water harvesting tank and ponds
- To understand the evaluation and monitoring of watershed programs

COURSE OUTCOMES (CO):

After the successful course completion, learners will develop following attributes:

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Students are able to understand basic concept of watershed management, characteristics and factors affecting watershed management
CO2	Students are able to understand the basic concept of hydrological data for watershed planning and hydraulic design of earthen embankment and diversion structures.
CO3	To understand the concept of sediments yield and their measurement and design of water harvesting tank and ponds
CO4	Students are able to understand the concept of evaluation and monitoring of watershed programs and planning and formulation of project proposal and cost benefits analysis of watershed programs.

CO-PO MAPPING:

CO	<p>PO1 Knowledge of Applied Science in Agricultural Engineering</p> <p>PO2 Knowledge of Basic Engineering</p> <p>PO3 Problem Solving</p> <p>PO4 Field Experimentations</p> <p>PO5 Knowledge of Soil and Water Conservation Engineering</p> <p>PO6 Knowledge of Irrigation and Drainage Engineering</p> <p>PO7 Knowledge of Farm Machinery, equipments and techniques</p> <p>PO8 Knowledge of Process and Food Engineering equipments and techniques</p> <p>PO9 Knowledge of Renewable Energy Engineering</p> <p>PO10 Environment and sustainability</p> <p>PO11 Ethics</p> <p>PO12 Individual and team work</p> <p>PO13 Communication and skill development</p> <p>PO14 Lifelong learning</p>
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CO1	Students are able to understand basic concept of watershed management, characteristics and factors affecting watershed management	3	2	3	2	2	2	3	0	0	1	1	2	2	3
CO2	Students are able to understand the basic concept of hydrological data for watershed planning and hydraulic design of earthen embankment and diversion structures.	3	2	3	2	3	3	2	0	0	2	1	3	3	3
CO3	To understand the concept of sediments yield and their measurement and design of water harvesting tank and ponds	2	3	2	3	3	2	3	0	0	3	1	2	2	3
CO4	Students are able to understand the concept of evaluation and monitoring of watershed programs and planning and formulation of project proposal and cost benefits analysis of watershed programs.	2	2	2	2	2	3	2	0	0	3	1	3	3	3
CO5															
3: Strong contribution, 2: average contribution, 1: Low contribution															

Name of Course/subject: Farm Power and Machinery Management

Course Code: AE417

Course Objective:

1. To expose the student with the mechanization status in the country and management techniques for future requirements.
2. To educate the students about self-employment using different types of farm machinery.
3. To impart the knowledge about performance, power and cost analysis of farm machinery.
4. To impart the knowledge of selection of farm machinery and their replacement.
5. To provide knowledge about planning of farm mechanization.

Course Outcome:

At the completion of the course the student will:

COURSE OUTCOME (CO)	DESCRIPTION
CO1	have knowledge about the present status of farm mechanization and management techniques for future requirement.
CO2	be able to develop self-employment by establishing the CHC of farm machinery.
CO3	have the basic knowledge about performance, power and cost analysis of farm machinery.
CO4	be able to optimally select machinery for varying uses.
CO5	be able to plan for mechanization of the farm.

CO-PO MAPPING:

CO	<p>PO1. Knowledge of Applied Science in Agricultural Engineering.</p> <p>PO2. Knowledge of Basic Engineering.</p> <p>PO3. Problem Solving.</p> <p>PO4. Field Experimentations.</p> <p>Engineering.</p> <p>PO6. Knowledge of Irrigation and Drainage Engineering.</p> <p>PO7. Knowledge of Farm Machinery, equipment and techniques.</p> <p>PO8. Knowledge of Process and Food Engineering equipment and techniques.</p> <p>PO9. Knowledge of Renewable Energy Engineering.</p> <p>PO10. Environment and sustainability.</p> <p>PO11. Ethics.</p> <p>PO12. Individual and team work</p> <p>PO13. Communication and skill development.</p> <p>PO14. Lifelong learning.</p>
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C01	have knowledge about the present status of farm mechanization and management techniques for future requirement.	2	1	3	2	-	-	3					1		3
C02	be able to develop self-employment by establishing the CHC of farm machinery.	3	3	2	3	-	-	3					3		2
C03	have the basic knowledge about performance, power and cost analysis of farm machinery.	3	3	2	3	-	-	3					3		3
C04	be able to optimally select machinery for varying uses.	3	3	3	3	-	-	3					2		3
C05	be able to plan for mechanization of the farm.	3	3	2	2	-	-	3					2		2
3: Strong contribution, 2: average contribution, 1: Low contribution															

Name of Course/subject: Mechanics of Tillage and Traction

Course Code: AE422

Course Objective:

6. To introduce the student with the mechanics of tillage tools and engineering properties of soil.
7. To educate the students about design concepts of tillage tools, force analysis, and application of dimensional analysis in soil dynamics.
8. To introduce the student with the traction and mechanics of tractor and tractor tyre and its testing.
9. To impart the knowledge of soil compaction and application of GIS in soil dynamics.
10. To solve the numerical problems based on force analysis and dimensional analysis.

Course Outcome:

At the completion of the course the student will:

COURSE OUTCOME (CO)	DESCRIPTION
CO1	have knowledge about mechanics of tillage tools and engineering properties of soil.
CO2	be able to apply design concepts of tillage tools, force analysis, and dimensional analysis in soil dynamics.
CO3	have the basic knowledge about performance, power and cost analysis of farm machinery.
CO4	have the basic knowledge of soil compaction and GIS in soil dynamics.
CO5	be able to solve the numerical problems based on force analysis and dimensional analysis.

CO-PO MAPPING:

CO	
	PO1. Knowledge of Applied Science in Agricultural Engineering.
	PO2. Knowledge of Basic Engineering.
	PO3. Problem Solving.
	PO4. Field Experimentations.
	Engineering.
	PO6. Knowledge of Irrigation and Drainage Engineering.
	PO7. Knowledge of Farm Machinery, equipment and techniques.
	PO8. Knowledge of Process and Food Engineering equipment and techniques.
	PO9. Knowledge of Renewable Energy Engineering.
	PO10. Environment and sustainability.
	PO11. Ethics.
	PO12. Individual and team work
	PO13. Communication and skill development.
	PO14. Lifelong learning.

C01	have knowledge about mechanics of tillage tools and engineering properties of soil.	2	3	3	2	-	-	3					1		3
C02	be able to apply design concepts of tillage tools, force analysis, and dimensional analysis in soil dynamics.	3	3	2	3	-	-	3					3		2
C03	have the basic knowledge about performance, power and cost analysis of farm machinery.	3	2	2	3	-	-	3					3		3
C04	have the basic knowledge of soil compaction and GIS in soil dynamics.	3	3	3	3	-	-	3					2		3
C05	be able to solve the numerical problems based on force analysis and dimensional analysis.	3	3	2	2	-	-	3					1		2
3: Strong contribution, 2: average contribution, 1: Low contribution															