Fourth Dean

B.Sc (Hons.) Agriculture Second Year/ Third Semester

Farm Power and Machinery

Course Code: AE222

Course Objective

1. To introduce the basic knowledge of farm power sources.
2. To educate the students about working principles, care, repair and maintenance of I C engine and other farm implements.
3. To impart the knowledge of operation, care, repair and maintenance of tractor.
4. To impart the knowledge of tillage, sowing, planting, harvesting, horticultural, hill agriculture, intercultural implements.
5. To provide the knowledge to solve numerical problems based on power, draft, cost of tractor operation with attached implements.

Course Outcome:

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	know the basic knowledge of farm mechanization and can promote the application of farm machinery in agriculture.
CO2	know the working principle of I C engine and they can repair and maintain the I C engine.
CO3	know the tractor operation in the field and students can repair and maintain the tractor.
CO4	have the knowledge about different farm implements like tillage, sowing, planting, and others.
CO5	have the ability to solve the numerical problems based on power, draft, cost of tractor operation with attached implements.

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implements usage	**PO5** Modern Agricultural/ Horticultural implements	**PO6** Modern plant protection implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	know the basic knowledge of farm mechanization and can promote the application of farm machinery in agriculture.	2	1	2	2	3	3				3		3
CO2	know the working principle of I C engine and they can repair and maintain the I C engine.	3	3	3	3	3	2				3		3
CO3	know the tractor operation in the field and students can repair and maintain the tractor.	3	2	3	3	3	3				2		3
CO4	have the knowledge about different farm implements like tillage, sowing, planting, and others.	3	1	2	2	3	3				2		3
CO5	have the ability to solve the numerical problems based on power, draft, cost of tractor operation with attached implements.	2	3	2	2	2	2				2		3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Principles of Seed Technology

Course Code: AG 204

Course Objective

1. To introduce the basic knowledge of seed production, seed policy and seed demand forecasting
2. To study about different classes of seed, production of nucleus and breeder's seed.
3. To familiarize the students with the foundation and certified seed production in different crops.
4. To aware the students about the concept of IPR, farmer's right and breeder's right.
5. To study about the seed treatment, seed packing and seed storage.

Course Outcome:

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Students gained the basic knowledge of seed production, seed policy and seed demand forecasting
CO2	Learned the different classes of seed, production of nucleus and breeder's seed.
CO3	Students were familiarized with the foundation and certified seed production in different crops.
CO4	Learned the basic concepts of IPR, farmer's right and breeder's right.
CO5	Students know and can practice the seed treatment, seed packing and seed storage.

CO- PO mapping

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implementation usage	**PO5** Modern Horticultural implements	**PO6** Modern plant protection implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	Students gained the basic knowledge of seed production, seed policy and seed demand forecasting	3		3	1	1	3		3		3		3
CO2	Learned the different classes of seed, production of nucleus and breeder's seed.	3		3	1	1	2		3		3		3
CO3	Students were familiarized with the foundation and certified seed production in different crops.	3		1	1	1	1		3	2	1		3
CO4	Learned the basic concepts of IPR, farmer's right and breeder's right.	3		3	2	1	1		3		2		3
CO 5	Students know and can practice the seed treatment, seed packing and seed storage.	3		3	1	1	2		3		3		3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Production Technology of Fruit Crops
COURSE CODE: HT 222

COURSE OBJECTIVES:

1. Basic concepts of importance, scope and divisions of horticulture.
2. Knowledge of climatic zones of horticulture crops, area and production of different fruit crops.
3. Basic knowledge of Selection of site, fencing, and wind break
4. Significance of horticulture crops planting systems, high density planting, planning and establishment
5. Basic concepts of growth regulators in fruit production. Package of practices for the cultivation of major fruits

COURSE OUTCOMES (CO):

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Importance, scope and divisions of horticulture
CO2	Basic knowledge of Selection of site, fencing, and wind break
CO3	Basic concept of climatic zones of horticulture crops, area and production of different fruit crops
CO4	Knowledge of growth regulators in fruit production. Package of practices for the cultivation of major fruits
CO5	Basic knowledge of selection of site, fencing, and wind break, planting systems

CO-PO MAPPING:

	CO	**PO1.**Basic Agriculture knowledge	**PO2.**Problem Solving	**PO3.** Field Experimentations	**PO4.**Modern implementation usage	**PO5** .Modern Horticultural implements	**PO.6** Modern Plant Protection implements	**PO**.7 Extension Program	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** 10.Individual and team work	**PO11** 11.Communication Finance	**PO12** Lifelong learning
CO1	Importance, scope and divisions of horticulture	3	2	3	2	3	2	2	2	2	3	1	2
CO2	Basic knowledge of Selection of site, fencing, and wind break	2	1	3	3	3	2	2	1	2	3	1	3
CO3	Basic concept of climatic zones of horticulture crops, area and production of different fruit crops	3	2	3	3	3	2	1	1	2	3	2	3
CO4	Knowledge of growth regulators in fruit production. Package of practices for the cultivation of major fruits	3	1	3	3	3	1	2	1	1	1	2	2
CO5	Basic knowledge of selection of site, fencing, and wind break, planting systems	3	2	3	3	2	1	2	3	1	2	2	1
3: Strong contribution, 2: average contribution, 1: Low contribution													

Diseases of Field Crops
COURSE CODE: AG202

COURSE OBJECTIVES:

- Basic concepts of plant pathogens and their economic importance
- In depth study of plant pathology including symptoms, disease cycle and favorable conditions in different type of crops
- Knowledge of insecticides/fungicides/bactericides/biofertilizers
- Study of epidemiology of plant diseases

COURSE OUTCOMES (CO):

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Basic concept of principles of plant pathology
CO2	Scope of plant pathology and phytopathogens
CO3	Classification of fungal/bacterial/viral diseases in different crops
CO4	Symptoms, disease cycle, disease management practices and epidemiology
CO5	Integrated plant disease management (IDM)

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implementation usage	**PO5** Modern Agricultural /Horticultural implements	**PO6** Modern plant protection implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	Basic concept of principles of plant pathology	2	3	2	2	3	3	3	3	1	2	2	3
CO2	Scope of plant pathology and phytopathogens	2	3	2	3	3	3	3	3	1	2	2	3
CO3	Classification of fungal/bacterial/viral diseases in different crops	2	3	3	3	3	3	2	2	1	2	2	3
CO4	Symptoms, disease cycle, disease management practices and epidemiology	2	3	3	3	2	3	3	2	1	2	3	3
CO5	Integrated plant disease management (IDM)	2	2	3	3	2	3	3	3	2	2	2	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Organic Farming
COURSE CODE: AG201

COURSE OBJECTIVES:

- Basics knowledge of organic farming, farming system
- Awareness of Organic production requirements; Biological intensive nutrient management
- Raising of vegetable crops organically through nutrient, diseases and pest management
- Knowledge of vermicomposting, green manuring, recycling of organic residues
- Basic knowledge of biofertilizers; Soil improvement and amendments
- Basics of use of biocontrol agents, biopesticides pheromones, trap crops, bird perches

COURSE OUTCOMES (CO):

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Know about the organic farming, farming system
CO2	Organic production requirements; Biological intensive nutrient management
CO3	Basics of Raising of vegetable crops organically through nutrient, diseases and pest management
CO4	Knowledge of biofertilizers; Soil improvement and amendments
CO5	Basics of use of biopesticides pheromones, biocontrol agents, , trap crops, bird perches

CO-PO MAPPING:

	CO	PO 1. Basic Agriculture knowledge	PO 2. Problem Solving	PO 3. Field Experimentations	PO 4. Modern implementation usage	PO 5. Modern Horticultural implements	PO 6. Modern Plant Protection implements	PO 7. Extension Program	PO 8. Environment and sustainability	PO 9. Ethics	PO 10. Individual and team work	PO 11. Communication	PO 12. Life-long learning
CO1	Know about the organic farming, farming system	3	2	1	2	2	3	2	3	1	2	1	3
CO2	Organic production requirements; Biological intensive nutrient management	3	2	2	2	1	3	2	3	1	2	1	3
CO3	Basics of Raising of vegetable crops organically through nutrient, diseases and pest management	3	2	3	2	2	3	1	3	2	2	1	2
CO4	Knowledge of biofertilizers; Soil improvement and amendments	3	1	3	1	1	3	1	3	1	2	1	3
CO5	Basics of use of biopesticides pheromones, biocontrol agents, , trap crops, bird perches	3	1	2	2	2	3	1	3	1	2	1	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Insect Morphology and Systematics

COURSE CODE: AG203

COURSE OBJECTIVES:

- Basics of Entomology including history, systematics and classification
- Knowledge of Insect Morphology, their systems of body and sensory organs
- Knowledge of the phenomena of metamorphosis and diapauses including type of insect larvae and pupa
- Basic concepts of orders of class insects and classification upto family
- Study of Taxonomy –importance, history and development and binomial nomenclature

COURSE OUTCOMES (CO):

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Know about the concept entomology
CO2	External morphology of insects
CO3	Basics of all the body system (digestive, circulatory, excretory, respiratory, nervous, secretory (Endocrine) and reproductive system of insects)
CO4	Orders of class insects and classification upto family
CO5	Knowledge of biology and characteristics of insect pests of different orders

CO-PO MAPPING:

	CO	PO 1. Basic Agriculture knowledge	PO 2. Problem Solving	PO 3. Field Experimentations	PO 4. Modern implementation usage	PO 5. Modern Horticultural implements	PO 6. Modern Plant Protection implements	PO 7. Extension Program	PO 8. Environment and sustainability	PO 9. Ethics	PO 10. Individual and team work	PO 11. Communication	PO 12. Life-long learning
CO1	Know about the concept entomology	3	2	1	2	2	3	2	3	2	2	1	3
CO2	External morphology of insects	3	2	2	2	1	3	2	3	2	2	1	3
CO3	Basics of all the body system (digestive, circulatory, excretory, respiratory, nervous, secretory (Endocrine) and reproductive system of insects)	2	2	3	1	2	3	1	2	2	2	1	2
CO4	Orders of class insects and classification upto family	2	1	3	1	1	3	1	2	2	1	1	2
CO5	Knowledge of biology and characteristics of insect pests of different orders	1	2	2	1	2	3	1	2	2	1	1	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Practical Crop Production II (Oil seeds and commercial crops)
COURSE CODE: AG312

COURSE OBJECTIVES:

- Orientation of students in national problems
- In depth knowledge of study of philosophy of NSS, fundamentals rights, directive principles of state policy
- Knowledge of Functional literacy, non-formal education of rural youth
- Basics to eradicate social evils, awareness programmes, consumer awareness
- Socio-economic structure of Indian society, population problems
- Basic knowledge of environment enrichment and conservation, health, family welfare and nutrition

COURSE OUTCOMES (CO):

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Students will have knowledge of national problems
CO2	In depth knowledge of philosophy of NSS, fundamentals rights, directive principles of state policy
CO3	Knowledge of Functional literacy, non-formal education of rural youth
CO4	Students will have knowledge of Socio-economic structure of Indian society, population problems
CO5	Basic knowledge of environment enrichment and conservation, health, family welfare and nutrition

CO-PO MAPPING:

	CO	PO 1. Basic Agriculture knowledge	PO 2. Problem Solving	PO 3. Field Experimentations	PO 4. Modern implementation usage	PO 5. Modern Horticultural implements	PO 6. Modern Plant Protection implements	PO 7. Extension Program	PO 8. Environment and sustainability	PO 9. Ethics	PO 10. Individual and team work	PO 11. Communication	PO 12. Life-long learning
CO1	Students will have knowledge of national problems	1	1	1	2	1	1	3	3	3	3	3	3
CO2	In depth knowledge of philosophy of NSS, fundamentals rights, directive principles of state policy	1	1	1	2	1	1	3	3	3	2	3	3
CO3	Knowledge of Functional literacy, non-formal education of rural youth	1	1	1	2	1	1	3	3	3	2	3	3
CO4	Students will have knowledge of Socio-economic structure of Indian society, population problems	1	1	1	2	1	1	3	3	3	2	3	3
CO5	Basic knowledge of environment enrichment and conservation, health, family welfare and nutrition	1	1	1	2	1	1	3	3	3	2	3	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

B.Sc (Hons.) Agriculture Second Year/ Fourth Semester

Principles of Plant Biotechnology

Course Code: AG 206

Course Objective

1. To introduce the basic knowledge of plant biotechnology.
2. To introduce the history of plant tissue culture
3. To introduce the recent advances in plant biotechnology
4. To familiar them tissue culture laboratory, basic techniques of biotechnology.

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Course Outcome:

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	able to know what are the basic technologies involved in biotechnology and how they are used for the production of useful products.
CO2	able to know how to maintain aseptic conditions in lab.
CO3	Students can use the basic knowledge regarding plant biotechnology
CO4	Students can figure out the measures to prevent the various stresses of any crop, how to identify resistant sources.
CO5	can use their skills for the identification of resistant sources for various stresses.

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implementation usage	**PO5** Modern Horticultural implements	**PO6** Modern plant protection implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning

CO1	able to know what are the basic technologies involved in biotechnology and how they are used for the production of useful products.	3	3	2	1	1	3		3		3		3
CO2	able to know how to maintain aseptic conditions in lab.	3	3	3	2	1	3		3		3		2
CO3	Students can use the basic knowledge regarding plant biotechnology	3	2	1	1	2	2		3	2	1		3
CO4	Students can figure out the measures to prevent the various stresses of any crop, how to identify resistant sources.	3	2	2	2	3	3		3		2		3
CO 5	can use their skills for the identification of resistant sources for various stresses.	3	1	1	1	1	2		3		2		3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Dimensions of Agricultural Extension

Course Code: AG 207

Objectives:

- Learn about the various definitions of extension education
- Extension helps in studying and solving the rural problems.
- Understand the difference between formal and extension education
- Appreciate the objective and principle of extension education
- Obtain idea on various development programmes in agriculture and allied area to help farmers.

Outcome:

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Students will get basic knowledge about all the Increasing efficiency in marketing, distribution and utilization of agricultural.
CO2	Conservation, development and use of natural resources.
CO3	To raise the standard of living of the rural people by helping them in right use of their resources.
CO4	They gain knowledge about all the systems of surveying method in rural areas.
CO5	They gain knowledge about all rural development programmes and policies of Government.

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implement usage	**PO5** Modern Agricultural/Horticultural implements	**PO6** Modern plant protection implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	Students will get basic knowledge about all the Increasing efficiency in marketing, distribution and utilization of agricultural.	3	1	2	1	1	3	3	3		3	1	3
CO2	Conservation, development and use of natural resources.	3	3	3	1	1	3	3	3		3	3	2
CO3	To raise the standard of living of the rural people by helping them in right use of their resources.	3	2	1	1	2	2	3	3	1	1	2	3
CO4	They gain knowledge about all the systems of surveying method in rural areas.	3	2	2	2	1	3	3	3		2	3	3
CO5	They gain knowledge about all rural development programmes and policies of Government.	3	1	1	1	1	2	3	3		2	3	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Livestock Production and Management

Course Code: AG209

Objectives:

- To study External body parts of cattle and buffalo.
- To study Methods of identification marks and dehorning of animal.
- Study of computerized database on dairy farm and Vaccination and control of ecto and endo parasites in cattle and buffalo.
- Preparation of feeding schedule and feeding different categories of cattle and buffalo.
- To study about the method of milking and composition.

Outcome:

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Students gain knowledge regarding livestock in Agriculture.
CO2	They understand the basics of knowledge of breeds of animals.
CO3	They gain knowledge regarding various livestock programs in India.
CO4	They have knowledge about the different livestock programs of Govt of India.
CO5	Able to know about the Role of women Place of livestock in the national economy.

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implementation usage	**PO5** Modern Horticultural implements	**PO6** Modern plant protection implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	Students gain knowledge regarding livestock in Agriculture.	3	1	2	1	1	3	3	3		3	1	3
CO2	They understand the basics of knowledge of breeds of animals.	3	3	3	1		3	3	3		3	3	2
CO3	They gain knowledge regarding various livestock programs in India.	3	2	1	1		2	3	3	1	1	2	3
CO4	They have knowledge about the different livestock programs of Govt of India.	3	2	2	2		3	3	3		2	3	3
CO 5	Able to know about the Role of women Place of livestock in the national economy.	3	1	1	1	1	2	3	3		2	3	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Diseases of Horticultural Crops and Their Management

Course Code: HT223

Course objective:

1. Knowledge of symptoms, cause, disease cycle of different diseases
2. In depth knowledge of Integrated disease management
3. Familiar with different management techniques of field and fruit crops
4. Knowledge of Diseases of pulses, field crops and vegetables
5. Knowledge of disease management of different field and fruit crops

Course Outcome

After completion of course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Able to understand about of symptoms, cause, disease cycle of different diseases
CO2	Learn the in depth knowledge of Integrated disease management
CO3	Diseases of cucurbits, onion & betelvine;
CO4	Study of Diseases of pulses, field crops and vegetables
CO5	Basic concepts of disease management of different field and fruit crops

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implementation usage	**PO5** Modern Agricultural /Horticultural implements	**PO6** Modern plant protection implements/equipments/implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	Able to understand about of water management including irrigation	2	3	2	1	2	2	2	3	2	1	1	3
CO2	Learn the basic knowledge of methods of irrigation and soil application of fertilizers	2	3	3	1	2	2	1	3	2	1	1	3
CO3	Able to know about methods of soil moisture estimation, evapo-transpiration and crop water requirement	2	3	2	1	2	3	2	3	1	1	1	3
CO4	Study of irrigation and nutrient management and their applications in production vegetables	2	3	3	1	2	2	2	3	1	1	1	3
CO5	Basic concepts of Water management of different crops (rice, wheat, maize, groundnut, sugarcane, mango, banana and tomato); Agricultural drainage	2	3	2	1	2	2		3	1	1	1	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Production technology of vegetables and flowers

COURSE CODE: HT-224

COURSE OBJECTIVES:

1. To understand importance and future scope of flower and vegetable cultivation
2. To get knowledge about horticultural practices and packages of flower and vegetable production
3. To get awarenes about post-horvest losses and their management practices
4. Adoptation of modern Commercial Production Technology for vegetables and flowers through which growers can benifitted
5. By applying different horticultural breeding tools to develop new varieties and hybrids

COURSE OUTCOMES (CO):

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Economic importance of vegetable and flowers
CO2	Demonstrate a fundamental understanding of plant identification, selection, use and maintenance of plant material best suited for conventional and sustainable landscapes
CO3	The advancement of knowledge and better understanding of plant and environment, agricultural practices are modified or new practices developed for high productivity.
CO4	Aims at obtaining maximum production at minimum cost.
CO5	Apply horticultural skills and knowledge to operate various business entities found in the horticultural industry

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations	**PO4** Modern implements usages	**PO5** Modern Agricultural/Horticultural implements	**PO6** Modern plant protection implements	**PO7** Extension Programme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	Economic importance of vegetable and flowers	3	3	2	1	3	3		3	1	1	1	3
CO2	Demonstrate a fundamental understanding of plant identification, selection, use and maintenance of plant material best suited for conventional and sustainable landscapes	3	2	3	2	3	1		3	2	3	1	2
CO3	The advancement of knowledge and better understanding of plant and environment, agricultural practices are modified or new practices developed for high productivity.	3	2	3	1	3	2		3	3	2	1	3
CO4	Aims at obtaining maximum production at minimum cost.	3	2	3	2	3	3		3	2	3	3	3
CO5	Apply horticultural skills and knowledge to operate various business entities found in the horticultural industry	3	1	1	1	3	2		3	3	3	2	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Manures, Fertilizers and Agro-Chemicals
COURSE CODE: AG208

COURSE OBJECTIVES:

- Basics knowledge of Raw materials – Manures – Bulky and concentrated – FYM
- Awareness of Composts – Different methods, Mechanical compost plants, Vermicomosting
- Green manures, Oil cakes, Sewage and sludge – Biogas plant slurry, Plant and animal refuges
- Knowledge of Manufacturing processes and properties of major nitrogenous (ammonium sulphate, urea, calcium ammonium nitrate, ammonium nitrate, ammonium sulphate nitrate)
- Basic knowledge of Organic chemistry as prelude to agro chemicals, Diverse types of agrochemicals, Botanical insecticides (Neem), Pyrethrum, Synthetic pyrethroids. Synthetic organic insecticide
- Knowledge of Herbicides – Major classes – Properties and uses of 2, 4-D, atrazine, glyphosate, butachlor benthiocarb

COURSE OUTCOMES (CO):

After completion of the course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Knowledge of Manures – Bulky and concentrated – FYM, Composts – Different methods, Mechanical compost plants, Vermicomosting
CO2	Green manures, Oil cakes, Sewage and sludge – Biogas plant slurry, Plant and animal refuges
CO3	Basics of Fertilizers – classifications, Manufacturing processes and properties of major nitrogenous (ammonium sulphate, urea, calcium ammonium nitrate, ammonium nitrate, ammonium sulphate nitrate) phosphatic (single super phosphate, enriched super phosphate
CO4	Basic knowledge of Organic chemistry as prelude to agro chemicals, Diverse types of agrochemicals, Botanical insecticides (Neem), Pyrethrum, Synthetic pyrethroids. Synthetic organic insecticide
CO5	Knowledge of Fungicides – Major classes – Properties and uses of carbendazim, carboxin, captan, tridemorph and copper oxychloride – Insecticides Act, Plant growth regulators

CO-PO MAPPING:

	CO	PO 1. Basic Agriculture knowledge	PO 2. Problem Solving	PO 3. Field Experimentations	PO 4. Modern implementation usage	PO 5. Modern Horticultural implements	PO 6. Modern Plant Protection implements	PO 7. Extension Program	PO 8. Environment and sustainability	PO 9. Ethics	PO 10. Individual and team work	PO 11. Communication	PO 12. Life-long learning
CO1	Knowledge of Manures – Bulky and concentrated – FYM, Composts – Different methods, Mechanical compost plants, Vermicomosting	3	1	2	2	2	3	2	1	1	2	1	1
CO2	Green manures, Oil cakes, Sewage and sludge – Biogas plant slurry, Plant and animal refuges	3	2	2	2	1	3	2	2	1	2	1	2
CO3	Basics of Fertilizers – classifications, Manufacturing processes and properties of major nitrogenous (ammonium sulphate, urea, calcium ammonium nitrate, ammonium nitrate, ammonium sulphate nitrate) phosphatic (single super phosphate, enriched super phosphate	2	2	1	2	2	3	2	2	2	2	1	2
CO4	Basic knowledge of Organic chemistry as prelude to agro chemicals, Diverse types of agrochemicals, Botanical insecticides (Neem), Pyrethrum, Synthetic pyrethroids. Synthetic organic insecticide	2	1	2	1	2	3	2	1	1	2	1	2
CO5	Knowledge of Fungicides – Major classes – Properties and uses of carbendazim, carboxin, captan, tridemorph and copper oxychloride – Insecticides Act, Plant growth regulators	2	1	1	2	2	3	1	1	1	2	1	2
3: Strong contribution, 2: average contribution, 1: Low contribution													