M.Sc. (Genetics & Plant Breeding) Agriculture III Semester

Name of Course/subject: Biotechnology for crop improvement

Course Code: APG 515

Course Objective

- To introduce the different biotechnological methods for crop improvement
- To introduce the knowledge of different mapping populations
- To introduce the knowledge of bioinformatics, genomics

Course Outcome:

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

COURSE OUTCOME (CO)	DESCRIPTION
CO1	help in the knowledge of different molecular markers, plant tissue culture techniques
CO2	able to know different mapping populations and molecular breeding techniques for crop improvement
CO3	Able to know the different bioinformatics techniques and IPRs
CO4	can figure out the measures to prevent the biotic and abiotic stress for crop improvement
CO5	understand the genomics and advanced molecular techniques for crop improvement

CO-PO MAPPING:

		PO1 Basic Genetic and plant breeding knowledge	**PO2** Problem Solving	**PO3** Identification and designing of research problems		**PO5** The Plant breeder and society	**PO6** Environment and sustainability	**PO7** Ethics	**PO8** Individual and team work	**PO9** Communication	**PO10** Lifelong learning
CO1	help in the knowledge of different molecular markers, plant tissue culture techniques	2	3	1	3		3		2	2	3
CO2	able to know different mapping populations and molecular breeding techniques for crop improvement	3	2	3	2		2		3	1	3
CO3	Able to know the different bioinformatics techniques and IPRs	3	2	2	3		2		2	1	3
CO4	can figure out the measures to prevent the biotic and abiotic stress for crop improvement	2	2	3	3		3		2	1	3
CO5	understand the genomics and advanced molecular techniques for crop improvement	3	1	3	3		2		3	2	3
3: Strong contribution, 2: average contribution, 1: Low contribution											

COURSE:Agronomy of Major Field Crop (Kharif)
COURSE CODE: APA514
COURSE OBJECTIVES:

- Knowledge and concept of major field crops (including cereals, pulses, oilseeds and fiber crops)
- Basics of soil requirements for field crops including fertilizers, manures, Farm yard manures
- Knowledge of seed rates, morphology phenology, varietal improvement of crops
- Basic concepts of origin, history, distribution, adaptations of different crops according to the environment
- Study of sustainable agriculture and cropping and farming systems

COURSE OUTCOMES (CO):

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

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Concept of major field crops (including cereals, pulses, oilseeds and fiber crops)
CO2	Knowledge of farm yard manures soil requirements for field crops including fertilizers, manures,
CO3	Basics if origin, history, distribution, adaptations of different crops according to the environment
CO4	In-depth knowledge of sustainable agriculture and cropping and farming systems
CO5	In-depth knowledge of production technology

CO-PO MAPPING:

	CO	PO 1. Basic Agronomy knowledge	PO 2. Research	PO 3. Field Experiments	PO 4.Modern implementation usage	PO 5.Modern concepts of Crop production	PO 6. Modern farming system	PO 7. Soil-water-plant relationship	PO 8. Environment and sustainability	PO 9. Ethics	PO 10. Individual and team work	PO 11. Communication	PO 12. Life-long learning
CO1	Concept of major field crops (including cereals, pulses, oilseeds and fiber crops)	2	2	3	3	3	3	3	3	3	2	2	2
CO2	Knowledge of farm yard manures soil requirements for field crops including fertilizers, manures,	3	2	1	2	2	2	3	2	2	3	2	2
CO3	Basics if origin, history, distribution, adaptations of different crops according to the environment	2	2	3	3	3	3	2	3	3	3	2	3
CO4	In-depth knowledge of sustainable agriculture and cropping and farming systems	3	3	2	2	2	2	1	3	2	2	3	3
CO5	In-depth knowledge of production technology	3	2	3	2	2	1	1	3	2	2	3	3
3: Strong contribution, 2: average contribution, 1: Low contribution													

Name of Course/ Subject: Production Technology of Cool Season Vegetable Crops

Course Code: AG504

Course objective

1. To know about Soil and Climate requirement of Cool Season Vegetables
2. Familiar with different varieties and methods of sowing in different vegetables.
3. Knowledge of Seed production technology of cool season vegetable
4. Knowledge of crop protection measure in different crops

Course Outcome

After completion of course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Able to know what are the basic criteria for selection of soil and climate for vegetable crops
CO2	Can use the basic knowledge regarding different cultural practices followed for cool season vegetables
CO3	Students are able to know about sowing time of different varieties according to temperature
CO4	Study of irrigation and nutrient management and their applications in production vegetables
CO5	By the end of course students will be able to control of different insect pests.

CO-PO MAPPING

	CO	**PO1** Basic horticulture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations		**PO5** Adoption of Advanced technology	**PO6** Plant protection measures	**PO7** Environment and sustainability	**PO8** Ethics	**PO9** Individual and team work	**PO10** Communication	**PO11** Lifelong learning
CO1	Able to know what are the basic criteria for selection of soil and climate for vegetable crops	3	3	2	2	3		3		1	1	3
CO2	Can use the basic knowledge regarding different cultural practices followed for cool season vegetables	3	3	3	2	3	3	3				2
CO3	Students are able to know about sowing time of different varieties according to temperature	3	3	2		3	1	3				3
CO4	Study of irrigation and nutrient management and their applications in production vegetables	3	3	3	3		2	3				3
CO5	By the end of course students will be able to control of different insect pests.	3	3	3	3	1	3	3	1			3
		1: Low contribution,	2: average contribution,	3: Strong contribution								

Name of Course/Subject: Production Technology of Underexploited vegetables crops

Course Code: AG 505

Course objective:

- To know about origin, geographical distribution, soil and climate requirement of underexploited vegetable crops.
- Familiar with different improved varieties and methods of sowing in different under exploited vegetables.
- Knowledge of various inter cultural operations and their management for under exploited vegetable crops.
- Knowledge of crop protection measure in different under exploited vegetables.

Course Outcome

After completion of course, a student will be able to

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Able to understand about the basic criteria for selection of under exploited vegetable crops on the basis of soil and climate requirement.
CO2	Learn the basic knowledge regarding different cultural practices followed for underutilized vegetable crops
CO3	Able to know about sowing time of specific varieties for different under exploited vegetables according to region and season.
CO4	Study of irrigation and nutrient management and their applications in production of under exploited vegetable crops
CO5	By the end of course students will be able to know different physiological disorders of under exploited vegetables and can control different insect pests and diseases.

CO-PO mapping

	CO	**PO1** Basic horticulture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations		**PO5** Adoption of Advanced technology	**PO6** Plant protection measures	**PO7** Environment and sustainability	**PO8** Ethics	**PO9** Individual and team work	**PO10**Communication	**PO11**Lifelong learning
CO1	Able to understand about the basic criteria for selection of under exploited vegetable crops on the basis of soil and climate requirement.	3	3	2	3	2		3				3
CO2	Learn the basic knowledge regarding different cultural practices followed for underutilized vegetable crops	2	2	1	2	2		2				2
CO3	Able to know about sowing time of specific varieties for different under exploited vegetables according to region and season.	3	3	2		2	1	3				3
CO4	Study of irrigation and nutrient management and their applications in production of under exploited vegetable crops	3	2	2	2	2	2	2				1
CO5	By the end of course students will be able to know different physiological disorders of under exploited vegetables and can control different insect pests and diseases.	3	3	3	1	2	1	3				3
3: Strong contribution, 2: average contribution, 1: Low contribution												

COURSE:Library and Information Services

COURSE CODE: PGS501

Objectives:

- To study about the role of library in education, research and technology
- Obtain idea of Intricacies of abstracting and indexing services
- To enlighten the students about the computerized library services
- To give the knowledge of e resources and search engines

Outcomes:

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

COURSE OUTCOME (CO)	DESCRIPTION
CO1	Students gain knowledge about the library importance in different sites. .
CO2	They gain knowledge of Intricacies of abstracting and indexing services
CO3	They know about the computerized library services
CO4	To provide knowledge of e resources
CO5	To give basic information about search engines

CO-PO MAPPING:

	CO	**PO1** Basic Agriculture knowledge	**PO2** Problem Solving	**PO3** Field Experimentations		Agricultural/Horticultural implements	**PO6** Modernplant protection implements	**PO7** ExtensionProgramme	**PO8** Environment and sustainability	**PO9** Ethics	**PO10** Individual and team work	**PO11** Communication	**PO12** Lifelong learning
CO1	Students gain knowledge about the library importance in different sites. .	3	3	1	1	1	3	3	3	2	3	1	3
CO2	They gain knowledge of Intricacies of abstracting and indexing services	3	3	1	3	3	3	1	3	2	3	3	2
CO3	They know about the computerized library services	3	2	1	3	3	2	1	3	2	1	2	3
CO4	To provide knowledge of e resources	3	2	1	3	3	3	1	3	2	2	3	3
CO5	To give basic information about search engines	3	1	1	3	3	3	1	3	2	2	3	3
3: Strong contribution, 2: average contribution, 1: Low contribution													