



SRM
UNIVERSITY
DELHI-NCR, SONEPAT

DEPARTMENT OF AGRICULTURE SCIENCE
TEACHING, LEARNING & EVALUATION PLAN

Programme	B.Sc. (H) Agriculture Science
Semester & Year	3rd & 2nd year
Course Code	22AGBS302
Course Title	Fundamentals of Plant Breeding
Name of Faculty	Dr. Sachin Kishor
Designation	Assistant Professor

TEACHING, LEARNING & EVALUATION PLAN

Units	Topics	No. of Lectures		Pedagogue	Activities	Unit Objective	Unit Learning outcome
		Planned	Taken				
Unit-01	1. Historical development, concept, nature and role of plant breeding, major achievements and future prospects.	2	2	Lecture & Discussion	1. Written test 2. Assignment 3. Presentation	1. To know about the introduction, historical and genetic relationship of plant breeding. 2. To acquired knowledge about the center of diversity, mode of reproduction, heritability and self-incompatibility.	To develop knowledge and understanding about the introduction, historical and genetic relationship of plant breeding. Acquired knowledge about the center of diversity, mode of reproduction, heritability and self incompatibility.
	2. Genetics in relation to plant breeding.	1	1				
	3. Modes of reproduction and apomixes, self-in compatibility and male sterility-genetic consequences, cultivar options.	2	2				
	4. Domestication, Acclimatization and Introduction.	1	1				
	5. Centers of origin/ diversity, components of Genetic variation; Heritability and genetic advance and Genetic basis.	1	1				
	6. Breeding methods in self- pollinated crops - mass and pure line selection, hybridization techniques and handling of segregating population; Multiline concept.	2	2				
Unit-02	1. Concepts of population genetics and Hardy-Weinberg Law.	2	2	Lecture & Discussion	1. Written test 2. Assignment 3. Presentation	To know about the concept of genetics, hardy-Weinberg law and population improvement.	To develop understanding about the concept of genetics, hardy-Weinberg law and population improvement.
	2. Genetic basis and methods of breeding cross pollinated crops.	2	2				
	3. Modes of selection and Population improvement.	2	2				
	4. Schemes-Ear to row method, Modified Ear to Row, recurrent selection schemes.	2	2				
Unit-03	1. Heterosis and inbreeding depression, development of inbred lines and hybrids.	1	1	Lecture & Discussion	1. Written test 2. Assignment 3. Presentation	To acquired knowledge about the hetrosis, synthetic nd composite varieties, selection, hybridization and polyploidy.	To obtain about the hetrosis, synthetic nd composite varieties, selection, hybridization and polyploidy.
	2. Composite and synthetic varieties.	1	1				
	3. Breeding methods in asexually propagated crops,	1	1				
	4. Clonal selection and hybridization.	1	1				
	5. Maintenance of breeding records and data collection.	1	1				
	6. Wide hybridization and pre-breeding.	1	1				
	7. Polyploidy in relation to plant breeding, mutation breeding-methods and uses; breeding	3	3				

	for important biotic and abiotic stresses.						
Unit 04	1. Biotechnological tools-DNA markers and marker assisted selection.	2	2	Lecture & Discussion	1. Written test 2. Assignment 3. Presentation	Aims to educate students about the biotechnology tools and molecular marker and their uses.	To gain knowledge about the biotechnology tools and molecular marker and their uses.
	2. Participatory plant breeding; Intellectual Property Rights, Patenting, Plant Breeders and & Farmer's Rights.	2	2				

RECOMMENDED BOOKS

- Phundan Singh. (2014). Essentials of Plant Breeding. Kalyani Publishers, New Delhi.
- Singh, B.D. (2015). Plant Breeding: Principles and Methods. Kalyani Publishers, New Delhi.
- Gupta, S.K. (2010). Plant Breeding Theory and Techniques. Wiley India Pvt. Ltd. New Delhi.
- Allard, R.W. (2010). Principles of Plant Breeding. John Wiley and Sons, New York.
- Poehlman, J.M and Borthakur, D. (1995). Breeding of Asian Field Crops. Oxford and IBH Publishing Co., New Delhi.
- Sharma, J.R. (1994). Principles and Practice of Plant Breeding. Tata McGraw Hill, Publishing Company Ltd., New Delhi.