Seed Technology

The courses of seed technology will be finitiated for three Years degree programmed in B.Sc. with specialization of seed technology. There shall be 10 courses in B.Sc. part I, II and III. During each year the final examination of theory and practical will be conducted based on courses outlines given in each paper. The examination will be conducted with three papers in B.Sc. part I, three papers in B.Sc. part II, and four papers in B.Sc. part III, the grading of marks will be done asper distribution of marks in both theory and practical examination during each year.

B.Sc. Part II 2004-2005

Paper : I	Principles of plant breeding in crop production	45
Paper : II	Principles and methods of hybrid seed production	45
Paper III	Commercial methods of seed production in important crops.	45
	Total	135
	Practical : Practical examination will be conducted with above thralobined courses.	65
	Total	200

Paper : I : Principles of plant breeding in crop improvement

Theory : Brief introduction and history of plant breeding and its role in crop production, mode of reproduction, sexual and asexual, pollination and fertilization mechanism self often and cross-pollinated crops, pollinatires and pollinizers, sterility and imcompatibility - their types, causes and utility in crop improvement and seed production, mendalian law of inheritamce, genera and emvironment, plant exploration, introduction and acclimatisation and their objectives, gene bank, pure line, coloneal and mass selection methods and their importance, Hybridization in self and cross pollinated crops, heterosis and polyploidy breeding for disease resistance.

Practical :

(i) Preparation of slides for the study mitosis and meiosis in root and shoot meristem - Aceto carmine method.

(ii) Study on floral biology of self, often and cross-pollinated crops.

(iii) Study on anthesis pollen viability, and fertility, and collection of pollen grains, dusting and pollination.

(iv) Procedure for selection of parents.

(v) Studies on segreating lines, using mixture/coloured seed and independent assortment.

(vi) Preparation of media for embryo and another cultures.

(vii) Experimental layout for varietal evaluation and records of observations on various characters.

Paper : I : Principles and Methods of Hybrid seed Production

Theory : Definition of heterosis and in chreeding depression, its brief history, objectives and role in seed production, genetic, physiological and bio-chemical basis of heterosis, exploitation of heterosis for commercial crop production. Apomixis and its exploitation, haploid breeding and its role in development of inbreed lines, exploitation of incompatibility in hybrid seed production, role of male sterile lines in hybrid seed production, role of marker fenes, methods of seed production role of marker fenes, methods of seed production of CMS line "A" maintainer line "B" and restorer line "R" maintain of parental line-male and female sterilelines, isolation distance in different crops for seed production, role of pollinators and pollinizers in seed production, brief methods of hybrid seed production in few important agronomical crops, devices and chemicals used in hybrid seed production.

Practical :

(i) Studies on flowering behaviours, inflorences, floral morphology and pollen structures of some important self and cross pollinated crops.

(ii) Method of emasculation and pollination in hybrid seed production and pure seed of perental varieties.

(iii) Studies on anthesis, stigma extrusion, and pollen germination.

(iv) Studies on pollination mechanism in self and cross pollinated crops.

(v) Identification and roughing of impure lines/off types lines using gene marker line.

(vi) Studies on floral structure of CMS - line A, B-line and R-line.

(vii) Maintenance of records of parental lines, hybrid lines and germplasm of seggragation population in different generations.

(viii) Methods of collection, grading and storage of seeds of parental lines and hybrids.

(ix) Visit of hybrid seed production farm.

Paper - III : Commercial Methods of Seed Production in Important Crops

Theory : History, objectives and importance of seed production of cereales, pulses, oil seeds and vegetable crops, reproduction and pollination control mechanism in cereales pulses, Oil seed and vegetable crops principles and methods of hybrids and seed production techniques in briefs some important cropspaddyk, Maize, sunflower, Mustard, linseed peas, horesegram, pigenpea, soyabean, factors influencing the seed quality, seed variability and diagnostics criterias, flowering behaviours, pollination and fertilization mechanism of self and cross pollinated vegetable crops, principles and methods of hybrids and seed production techniques in brief some of important vegetable crops potato, tomato, cauliflower, cabbage, onion, factors affecting on seed setting and seed productionm role of marker genes, doner parents, pollinizers, pollinators and make sterile lines in seed production.

Practical :

(i) Studies on description of varietal characteristics and their identification of important cereals pulses and vegetable crops.

(ii) Studies on varietal/genetic purity of seed, seed viability and germeability.

(iii) Studies of pollination, fertilization and seed setting mechanisms in self and cross-pollinated cereals, oil seed, pulse and vegetable crops.

(iv) Studies on techniques of selfing and crossing in maize, mustard sunflower. Tomato, peas, cauliflower,.

(v) Maintenance of records of seed production and varietal purity.

(vi) Visit of seed production farm.

B.Sc. Part - II

Practical Paper - I

The practical examination will be conducted comprising of all three course of B.Sc. Part - II and marks will be distributed as per following :

1. Prepare a slide of mitosis and meiosis stages in roots/ shoots meristem. 10
2. Study of pollen viability 5
3. Prepare a layout plan and observation records for evaluation of varieties and seggragating hybrid lines. 10
4. Studies on flower morphology and pollen structure of self and cross

	- pollinated crops	10
5.	Describe the floral structure of CMS - line 'A' B-line and R-line.	5
6.	Identification of seeds of important varieties of pulses, cereales, oil seeds and vegetable crops.	10
7.	Studies on method of emasculation, and pollination in self and cross-pollinated crops.	5
8.	Practical records.	5
9.	Viva-Voce	5
	Total	65