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 - I 2004 - 2005

Theory papers

Paper I	Seed Morphology and development	45 marks
Paper II	Seed physiololgy and Biochemistry	45 marks
Paper III	Principles of seed production	45 marks
Practical	Based on courses outlined below under Sub-lead practicals.	65 marks
	Total =	200 marks

Paper I Seed Morphology and Development

Theory : Dicotyledonous and Monocotyledonous seeds of major crops and their family, flower structure, Megasporangium, female gametophyte development, Microsporangium, Male gametophyte development, pollination, autogamy, allogamy, fertilization endosperm and embryo development, immature and physiologicaly mature seeds, polyembryony, apomixis, development of seeds fruits, seed monoauxic, diauxic and seed maturity Morphology and structure of seed.

Practical :

(1) Morphology of Dicot and Monocot seeds.

(2) Seed identification of different species.

(3) Morphology of seedlings and adult plants.

(4) Phenol test and peroxidase test.

(5) GA_3 test.

(6) Electrophoresis

(7) Physical and chemical indices of seed maturity.

Paper II : Seed physiology and Bio-Chemistry

Theory : Physiology of seed development, seed ripening and

maturation process, chemical composition of seeds, synthesis of food reserves, stimulators, inhibitors, phenolic compounds, enzymes, hormonal activities, germination, process, factors affecting seed germination and viability, chemical changes during seed storange and germination, respiratiory pathways during germination, dormancy and causes of dormancy and its overcoming, improvement of seed germination with chemical treatments and irradiations.

Practical ;

(i) Studies on factors affecting seed germination, temperature moisture, light, permeability, inhibitors, osmosis.

(ii) Seed structure and seed coat in relation to dormancy and hardiness.

(iii) Seed viability test.

(iv) Methods of breaking or dormancy for germination.

(v) Seed leachate conductivity test.

(vi) Accelerating ageing test.

Paper : III Principles of seed production :

Theory : Definition of seed and their types. Differences in seed and grains, role of quality seed in crop production, seed quality control concept in production of different crops classification of crops in relation to mode of reproduction Methods of seed production, testing of crop varieties and hybrids in self often, and cross-pollinated crops, notification and release of varieties, genetic purity of varieties, life span and factors responsible in deterioration of quality, maintenance of genetic purity, methods of production of nucleus, breeder, foundation and certified seeds, factors affecting seed setting, selection criteria of seed production and choice of area and conditions.

Practical :

(i) Identification of different crop seeds.

(ii) Seed production planning and monitoring.

(iii) Study of inflorescences and flower structure in self and cross polinated crops.

(iv) Study of polination, fertilization, pollinators, isolation distances.

(v) Visit of nucleus, breeder seed plots farms and maintemamce of varietal records.

(vi) Visit of foundation and certified seed production plots farms and records of quality seed production.

Practical Examination

B.Sc. Part I

Paper I **M.M. 65**

The practical examination will be conducted comprising of three papers of B.Sc. part - I and marks distribution will be as per following question format :

1. Description of anatomical differences in dicot and monocot seed. 10
2. Determination of purith of varieties by phenol test/peroxidase test/ GA_3 test of seeds. 5
3. Study of seed viability and germeability 5
4. Methods of breaking of seed dormancy 5
5. Identification of seeds of different crops and varieties (spotting of 10 sp.) 10
6. Preparation of proforma for records of breeder seed foundation seeds/ certified seeds. 5
7. Study on flower structures of self and cross pollinated crops. 5 + 5 = 10
8. Collection of varietal herbarium of seed and practical records. 5 + 5 = 10
9. Viva Voce 5

Total Marks 65