Collins, H.A. and Edwards, S. 1998. Plant Cell Culture. Bios Scientific Publishers, Oxford, UK

Giri C C and Giri A., 2007. Plant Biotechnology Practical Manual, I K International Publishing House Pvt Ltd.

Khanna V K., 2003. Plant Tissue Culture Practicals, Kalyani, 2nd Ed, U.P.

Kumar K, 2004. An introduction to Plant tissue culture, New Central Book Agency (P) Ltd

Peter K V, Keshavachandran R., 2008. plant Biotechnology: Methods in Tissue Culture and Gene Transfer, Universities Press, Hyderabad.

Purohit S.S. 2000. Bio-fundamentals and applications, Agrobios, Jodhpur

Ramavath K G.,2004. Plant Biotechnology, Chand Publication, New Delhi.

Reinert, J. 1982. Plant Cell and Tissue Culture: A Laboratory Manual. Narosa Publishing House, New Delhi.

BOS506(REV22) **- SEED TECHNOLOGY**

Teaching hours: 10/unit

Course outcome:

- The course has basic concepts related to seed structure and germination
- Students will know the seed quality and seed health testing methods
- Various seed processing methods have practical applications. They will know the various methods used in seed processing
- Seed certification and production and marketing procedures will familiarise them with the essential requirements in seed production
- With this, they can be employed in seed production companies
- Students can also establish seed production units and generate employment

Unit I:

Significance of Seed Technology

Seed germination: Structure of monocot and dicot seeds; factors affecting germination; Seed dormancy- types,

significance, mechanism, endogenous and exogenous factors regulating dormancy, Orthodox and recalcitrant seed

Unit II

Seed quality and health Testing: Implications of seed health testing, ISTA and its role in seed testing. seed sampling, purity analysis, moisture determination , viability , vigour, incubation tests , bioassays and biochemical procedures, , factors affecting incubation test results

Unit III

Seed processing: seed drying – methods, types of driers, seed cleaning and upgrading- equipment and their functions; functions of scalper, debearder, scarifier, huller, seed cleaner and grader. Screen cleaners, specific gravity separator, indented cylinder, velvet-spiral-disc separators. Seed treatments- methods of seed treatment, seed treating formulations and equipments, seed disinfestations, identification of treated seeds. Seed Packaging and labelling,

Unit IV

Seed certification- objectives of seed certification; seed certification agency/organization and staff requirement; quarantine regulations- import and export, Field Inspection- principles, phases and procedures; reporting and evaluation of observations; pre and post-harvest control tests for genetic purity evaluation (grow-out tests), seed inspection, seed legislation- Seed Act, Seed Rules, seed law enforcement, seed quality regulation in India.

Unit V

Seed production and Marketing: Management of seed production: general principles of seed production, location of seed production, cropping, selection of cultivars, cultural practices, Longevity and storage of seeds , impact of storage fungi on seeds, transgenic seeds, hybrid seeds. Seed marketing management.

Suggested Readings

Agarwal RL. 1997. Seed Technology. Oxford & IBH.

Agrawal PK & Dadlani M.1992. Techniques in Seed Science and Technology. 2nd Ed. South Asian Publ.