21GPBR314 PRINCIPLES OF SEED TECHNOLOGY

Hours Per Week :

L	T	P	C
2	-	2	3

Total Hours :

L	T	P
30	-	30

Source:
https://images.app.goo.gl/8jUhrH9WwpvBFxsc6

Course Description and Objectives:

This course will provide to understand principles involved in seed production and characteristics of quality seed

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Assist seed growers on various techniques of production, processing, storage and marketing of quality seed for improved profitability
2	Advise farmers on issues related to seed quality and rights and obligations in dealing with spurious and adulterated seed supplies
3	Acquire knowledge on seed legislation and trading

SKILLS:

- ✓ *Produce high quality certified seeds*
- ✓ *Analyse the quality of seeds*
- ✓ *Differentiate nucleus, breeder, foundation and certified seed*
- ✓ *Experience in seed production techniques*
- ✓ *Detailed knowledge on rules and regulation of seed acts and policies*

ACTIVITIES:

- *Seed sampling and testing physical purity, germination, viability etc*
- *Seed and seedling vigour test*
- *Genetic purity test: Grow out test and electrophoresis*
- *Seed certification: Procedure, Field inspection, Preparation of field inspection report*

UNIT - 1

Seed and seed technology: introduction, definition and importance; Deterioration causes of crop varieties and their control; Maintenance of genetic purity during seed production, seed quality

.UNIT - 2

Definition, Characters of good quality seed, different classes of seed; Foundation and certified seed production of important cereals, pulses, oilseeds, fiber crops; Seed certification, phases of certification, procedure for seed certification, field inspection; Guidelines for the Conduct of Tests for Distinctness, Uniformity and Stability (Test Guidelines) by UPOV

UNIT - 3

Seed Act and Seed Act enforcement; Duty and powers of seed inspector, offences and penalties; Seeds Control Order 1983, Varietal Identification through Grow Out Test and Electrophoresis, Molecular and Biochemical test; Detection of genetically modified crops, Transgene contamination in non-GM crops, GM crops and organic seed production

UNIT - 4

Seed drying, processing and their steps, Seed enhancement, pelleting, priming; seed testing for quality assessment, seed treatment, its importance, method of application and seed packing; Seed storage: general principles, stages and factors affecting seed longevity during storage.

Importance of SRR (Seed Replacement Rate), how to manage genetic purity in varieties and hybrids while increasing the SRR

UNIT - 5

Measures for pest and disease control during storage; Seed marketing: structure and organization, sales generation activities, promotional media; Factors affecting seed marketing, OECD guidelines in seed certifications; Role of WTO and OECD in seed marketing

LABORATORY EXPERIMENTS

LIST OF EXPERIMENTS

1. Seed production in cereals (Wheat, Rice, Maize, Sorghum and Bajra)
2. Seed production in pulses (Redgam, Blackgram, Greengram and Bengalgram)
3. Seed production in oilseeds (Groundnut, Sesame, Sunflower and Castor)
4. Seed certification - Procedure, field inspection - preparation of field inspection report
5. Seed sampling – Principles and procedures
6. Physical purity analysis of field crops and vegetable crops
7. Germination analysis of field crops and vegetable crops
8. Seed moisture tests of field crops and vegetable corps
9. Seed viability test of field crops and vegetable crops
10. Seed dormancy- Types of dormancy- methods of breaking dormancy

11. Seed vigour tests of field crops and vegetable crops
12. Seed health testing of field crops and vegetable crops
13. Grow out test (GOT) and electrophoresis for varietal identification
14. Visit to seed testing laboratories (STLs)
15. Visit to seed processing plant and seed production farm

REFERENCES:

1. Agarwal, P.K. 1994. *Principles of Seed technology*. ICAR, New Delhi
2. Agarwal, P.K. and Dadlani, M. 1986. *Techniques in Seed Science and Technology* South Asian Publishers, New Delhi
3. Agarwal, R.L. 1995. *Seed Technology*. Oxford and IBH Publication Co., New Delhi
4. DhirendraKhare and Mohan S. Bhale. 2007. *Seed Technology*. Scientific Publishers (India), Jodhpur
5. Thomson, J.R. 1979. *An introduction of Seed Technology*. Leonard Hill, London