INSTITUTE	**FACULTY OF AGRICULTURE**
PROGRAM	**BACHELOR OF SCIENCE (Hons.) AGRICULTURE**
SEMESTER	**4**
COURSE TITLE	**PRINCIPLES OF SEED TECHNOLOGY**
COURSE CODE	**16AS0409**
COURSE CREDITS	**3**

Objective:

1 To increase agriculture production through the spread of good quality seed of high yielding verities.

2 To provide the improved quality seed to the farmers.

Course Outcomes: After completion of this course, student will be able to:

1 To acquaint with scope and importance of seed technology in agriculture and the role of officials and legislation, seed act and seed order in quality of seed production.

2 To develop an understanding of various seed production techniques for different field crops, the importance of maintenance of purity of crop varieties, and factors causing deterioration of variety.

3 To execute various phases of seed certification, field inspection, and seed purity testing.

4 To analyze the factors related to genetic and physical purity of seed and its health status of seeds of a variety during seed processing.

Pre-requisite of course: To know about the seed structure, functions and production techniques of different crops.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**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; Definition, characters of good quality seed and different classes of seed; Foundation and certified seed production of important cereals, pulses, oilseeds, fodder and vegetables.	6

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Contents : Unit	Topics	Contact Hours
2	**2** Seed certification, phases of certification, procedure for seed certification, field inspection; 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	5
3	**3** Detection of genetically modified crops, transgene contamination in non-GM crops, GM crops and organic seed production	1
4	**4** Seed drying, processing and their steps; 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, measures for pest and disease control during storage	3
5	**5** Seed marketing-structure and organization, sales generation activities, promotional media. Factors affecting seed marketing, role of WTO and OECD in seed marketing	2
Total Hours		**17**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**1** Seed production in major cereals- wheat, rice, maize, sorghum and bajra	2
2	**2** Seed production in major pulses- pigeonpea, green gram, black gram, chickpea	2
3	**3** Seed production in major oilseeds- groundnut, sesame, soybean, mustard, castor	2
4	**4** Seed production in cotton	2
5	**5** Seed production in vegetable crops- tomato, brinjal, chillies and okra	2
6	**6** Seed sampling and physical purity test	2
7	**7** Seed Germination and viability test	2
8	**8** Seedling vigour test	2

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
9	**9** Genetic purity test- grow out test and electrophoresis	2
10	**10** Procedure of seed certification	2
11	**11** Field inspection and preparation of field inspection report	2
12	**12** Visit to seed production farms	2
13	**13** Visit to seed testing laboratories	2
14	**14** Visit to seed processing plant	2
Total Hours		**28**

Textbook :

1 NA, NA, NA, NA

References:

1 Principles of Seed Technology, Principles of Seed Technology, G. M. Kulkarni, Kalyani Publisher, 2015

2 Seed Technology, Seed Technology, R. L. Agrawal, Oxford & IBH, 2008

3 Structure Development and Reproduction in Angiosperms, Structure Development and Reproduction in Angiosperms, V. Singh, P. C. Pande & D. K Jain, Kalyani Publishers, 1998

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
25.00	25.00	20.00	10.00	10.00	10.00

Instructional Method:

1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by white board may also use any of tools such as demonstration, role play, quiz, brain storming, MOOCs etc.

2 The internal evaluation will be done on the basis of continuous evaluation of students in the class-rooms.

3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

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Instructional Method:

4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.

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