



SRI YN COLLEGE(A) – NARSAPUR

(Affiliated to Adikavi Nannaya University)

III B.Sc (Hon's) Botany Major Syllabus - Semester – V, Course – 14

For 2023 – 2027 batch (w.e.f. 2026 – 2027)

Seed Technology

I. Learning Objectives: By the end of this course the learner has:

1. To understand the factors responsible for seed dormancy and procedures for break-down.
2. To learn the aspects of seed processing and storage.
3. To acquaint with various practices in seed testing and diagnosis of seed borne diseases.

II. Learning Outcomes: On completion of this course students will be able to:

1. Explain the causes for seed dormancy and methods to break dormancy.
2. Understand critical concepts of seed processing and seed storage procedures.
3. Acquire skills related to various seed testing methods.
4. Identify seed borne pathogens and prescribe methods to control them.
5. Understand the legislations on seed production and procedure of seed certification

Syllabus of theory

Unit - 1: Seed dormancy

1. Seed and grain: Definitions, importance of seed; structure of Dicot and Monocot seed.
2. Role and goals of seed technology; characteristics of quality seed material.
3. Dormancy: Definition, causes for seed dormancy; methods to break seed dormancy.

Unit – 2: Seed processing and storage

1. Principles of seed processing: seed pre-cleaning, precuring, drying, seed extraction; cleaning, grading, pre-storage treatments; bagging and labelling, safety precautions during processing.
2. Seed storage; orthodox and recalcitrant seeds, natural longevity of seeds.
3. Factors affecting longevity in storage; storage conditions, methods and containers.

Unit – 3: Seed testing

1. Definition of seed vigour, viability and longevity; seed sampling and equipment; physical purity analysis.
2. Seed moisture – importance – methods of moisture determination.
3. Seed germination tests using paper, sand or soil – standard germination test; TZ test to determine seed viability; seed health testing.

Unit – 4: Seed borne diseases

1. A brief account of different seed borne diseases and their transmission.
2. Different seed health testing methods for detecting microorganisms.
3. Management of seed borne diseases; seed treatment methods: spraying and dusting.

Unit – 5: Seed certification

1. Objectives - Indian seed Act; seed rules and seed order; new seed policy (1988).
2. Seed Inspector: Duties and responsibilities; classes of seeds, phases of certification standards (i.e., Land requirement, isolation distance) etc.
2. Issue of certificates, tags and sealing; pre and post control check: Genetic purity verification, certification, records and reporting.

IV. Textbooks:

1. Sharma G. K. (2012) Seed Science and Technology, Daya Publishing House, New Delhi, India
2. Reddy, M. V. and K. V. Krishna Reddy (2009) Seed Science and Technology: A Comprehensive Manual, BS Publications, Hyderabad, India
3. Lawrence O. Copeland and Miller B. McDonald (2014) Principles of Seed Science and Technology, Springer, New York, USA
4. Agrawal, (2005) Seed Technology. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi

V. Reference Books:

1. Umarani R, Jerlin R, Natarajan N, Masilamani P, Ponnuswamy AS (2006) Experimental Seed Science and Technology, Agrobios, Jodhpur
2. Desai B D 2004. Seeds Hand Book: Processing and Storage, CRC Press
3. Agarwal V K and J B Sinclair 1996, Principles of Seed Pathology, CRC Press
4. Tunwar NS and Singh SN. 1988. Indian Minimum Seed Certification Standards. CSCB, Ministry of Agriculture, New Delhi.
5. McDonald, M.B. and L.O. Copland. 1999. Seed Science and Technology Laboratory Manual, Scientific Publishers, Jodhpur
6. Jagdish Lal and R. C. Saxena (2011) Seed Technology and Seed Pathology, Agrobios (India), Jodhpur, India



SRI YN COLLEGE(A) – NARSAPUR
(Affiliated to Adikavi Nannaya University)
III B.Sc (Hon's) Botany Major - Semester – IV, Course – 14
For 2023 – 2027 batch (w.e.f. 2026 – 2027)
Seed Technology
Practical Syllabus

Course Outcomes: On successful completion of this practical course, student shall be able to:

1. Break the seed dormancy using various techniques.
2. Determine seed moisture, seed germination percentage, seed viability and vigour.
3. Identify the seed borne pathogens and prescribe methods to prevent or control them.

Laboratory/field exercises:

1. Determination of physical properties of seeds of 3 select local crops (1 each from cereals, millets, pulses and oil seeds).
2. Breaking seed dormancy in 3 select local crops.
3. Measurement of seed moisture content by O S W A or moisture meter or oven drying method.
4. Seed germination tests and evaluation.
5. Seed vigour - conductivity test.
6. Accelerated ageing tests.
7. Tetrazolium test.
8. Priming and invigoration treatments for improving germination and vigour.



SRI YN COLLEGE(A) – NARSAPUR
(Affiliated to Adikavi Nannaya University)
IIIB.Sc (Hon's) Botany Major - Semester – V, Course – 14
For 2023 – 2027 batch (w.e.f. 2026 – 2027)
Seed Technology
Model Question Paper

Time: 3Hrs

Max. Marks: 60M

SECTION – I

Answer any FIVE questions, each question carries FOUR marks. Draw diagrams wherever necessary.

5 x 4M = 20M

1. Structure of Dicot seed
2. Importance of Seed
3. What is Seed Processing?
4. Emasculation
5. Seed health testing
6. Explain the duties of Seed inspector
7. Indian Seed act
8. What is Seed Certification?

Answer any FIVE questions , each question carries EIGHT mars. Draw diagrams wherever necessary.

5 x 8M = 40M

SECTION – II

9. Write an essay on role and goal of Seed Technology.
10. Define Seed Dormancy. Write an essay on causes of methods to break Seed Dormancy.
11. Write an essay on various stages in Seed Processing.
12. Write an essay on Seed storage condition, methods and containers.
13. Write an essay on importance of Seed moisture. Give a note on methods of moisture determination.

SECTION – III

14. Write a brief account of disscent seed borne diseases and their transmission.
15. Write an essay on disscent seed health testing methods for detecting micro organisms.
16. Write an essay on classes of seeds and phases of certification standards.
17. Write a note on seed inspector duties and responsibilities
18. Write an essay on Genetic purity verification and certification.



SRI YN COLLEGE(A) – NARSAPUR
(Affiliated to Adikavi Nannaya University)
IIIB.Sc (Hon's) Botany Major - Semester – V, Course – 14
For 2023 – 2027 batch (w.e.f. 2026 – 2027)

Seed Technology

BLUE PRINT

Note: The question paper setters are requested to adhere to the format given below.

Unit	Essay questions	Short questions	Marks allotted to the unit
Unit - 1	2	2	24
Unit – II	2	2	24
Unit – III	2	2	24
Unit – IV	2	1	20
Unit – V	2	1	20



SRI YN COLLEGE(A) – NARSAPUR
(Affiliated to Adikavi Nannaya University)
IIIB.Sc (Hon's) Botany Major - Semester – V, Course – 14
For 2023 – 2027 batch (w.e.f. 2026 – 2027)
Seed Technology
Practical Model Question Paper

Time: 3Hrs

Max. Marks: 50

1. Write aim, principal, procedure and requirements for experiment 'A'. 15M
2. Write aim, principal, procedure for experiment 'B'. 10M
3. Identify the following photograph / chart / specimen / slide. 15M
 - D)
 - E)
 - F)
4. Record + Viva - voice 7 + 3 = 10M

Total Marks = 50M
