

Kuvempu University Bachelor of Science (B.Sc.)
Semester Scheme -SEP
SKILL ENHANCEMENT COURSE FOR UG BOTANY
Govt. of Karnataka (As per G.O. No.: ED 166 UNE 2023, Bengaluru, dated: 08-05-2024)
VI – Semester

Title: Nursery Techniques and Plant Propagation
 Practical Knowledge/Skill based Course – Semester VI (Compulsory Course)
 BOT6.1: Botany Practical / Skill based Course

BOTANY - VI SEMESTER SKILL ENHANCEMENT COURSE (SEP)
COURSE STRUCTURE

Course No.	Type of course	Theory/ Practical	Credits	Hours/ week	Total hours/ semester	Duration of Exam	Formative assessment mark	Summative assessment marks	Total marks
	SEC	PRACTICAL	02	04	64	03 hours	10	40	50

Nursery Techniques and Plant Propagation (Practical)

Course Objectives

1. To introduce students to the basic concepts of plant nursery and its importance in agriculture and horticulture.
2. To train students in practical skills involved in raising and maintaining plant nurseries.
3. To develop knowledge about different methods of seed and vegetative propagation.
4. To provide hands-on experience in preparation of nursery beds and potting media.
5. To develop skills in nursery management and plant protection practices.

Course Outcomes

After completion of this course students will be able to:

1. Understand the importance and types of plant nurseries.
2. Prepare nursery beds and suitable potting mixtures.
3. Perform seed sowing and seed treatment techniques.
4. Apply different vegetative propagation methods such as cutting, layering and grafting.
5. Manage nursery plants through watering, transplanting and protection practices.
6. Develop basic entrepreneurial skills related to nursery management.

PRACTICAL SYLLABUS

Nursery Techniques and Plant Propagation

1. Study and Identification of Nursery Tools and Equipment

Observation and identification of commonly used nursery tools such as **Hand** Trowel, Khurpi, Pruning Shears/Secateurs., Watering Can, Garden Gloves, Containers/Pots/Trays. And to Study their uses and maintenance.

2. Preparation of Nursery Beds

Demonstration and preparation of different types of nursery beds such as raised beds, flat beds and sunken beds.

Study of bed size, spacing, soil preparation and leveling.

3. Preparation of Potting Mixture

Preparation of suitable potting media using garden soil, sand, compost, vermicompost and cocopeat.

Understanding the importance of aeration, drainage and nutrient availability.

4. Preparation and Filling of Containers for Nursery Plants

Preparation and filling of containers such as polybags, pots and seed trays with potting mixture. Ensuring proper drainage and proper labeling.

5. Seed Treatment Methods

Demonstration of seed treatment techniques such as soaking, fungicide treatment or biofertilizer treatment to improve germination and seedling health.

6. Seed Sowing Techniques in Nursery

Practice of seed sowing methods in nursery beds or trays with appropriate spacing, depth and covering.

7. Transplanting and Pricking of Seedlings

Removal of seedlings from nursery beds and transplanting them into polybags or pots.

Observation of spacing, watering and care after transplantation.

8. Vegetative Propagation through Underground Plant Parts

Demonstration of propagation through root, tuber, bulb, bulbil and rhizome using plants such as sweet potato, potato, onion, garlic, ginger and turmeric.

9. Propagation by Stem Cuttings

Preparation and planting of stem cuttings for vegetative propagation using plants such as hibiscus, bougainvillea or coleus.

10. Vegetative Propagation by Layering

Demonstration of layering techniques such as air layering or simple layering in plants like guava, jasmine or pomegranate.

11. Demonstration of Grafting Techniques

Study and demonstration of grafting methods such as wedge grafting or approach grafting in horticultural plants.

12. Nursery Management Practices and Field Visit.

Reference Books

1. **Plant Propagation: Principles and Practices – Hudson T. Hartmann and Dale E. Kester**
(Indian edition widely used in horticulture and nursery management courses)
 2. **Plant Propagation – V. N. Naik**
A comprehensive book explaining various methods of vegetative propagation.
 3. **Propagation of Horticultural Plants – K. Rajan and B. V. S. Reddy**
Covers propagation techniques used in nurseries.
 4. **Introduction to Horticulture – N. Kumar**
Includes nursery management and propagation basics.
 5. **Fundamentals of Horticulture – J. S. Pruthi**
A useful book covering nursery establishment and plant propagation methods.
 6. **Horticulture at a Glance – Amar Singh and Jawahar Lal**
Provides concise information on nursery techniques.
 7. **Basic Horticulture – K. V. Peter**
Contains practical aspects of nursery management and plant propagation.
 8. **Practical Manual of Horticulture Crops – T. K. Bose and M. G. Som**
Includes practical exercises useful for nursery training.
 9. **Principles of Horticulture – C. B. Singh**
Covers plant propagation, nursery establishment and crop management.
 10. **Handbook of Horticulture – K. L. Chadha**
A standard reference for horticulture and nursery practices in India.
- Note: A minimum of 10 experiments should be conducted**

B.Sc. BOTANY – SKILL ENHANCEMENT COURSE (SEC)

Practical Examination

Nursery Techniques and Plant Propagation

Time: 3 Hours

Max. Marks: 40

Q1. Major Experiment (10 Marks)

Perform the given experiment and write Aim, Principle, Procedure and Diagram.

a) Grafting

OR

b) Layering

Q2. Minor Experiment (5 Marks)

a) Preparation of organic manure / compost used in nursery plants

OR

b) Demonstration of stem / root / leaf cuttings for plant propagation

Q3. Practical Demonstration (5 Marks)

a) Prepare a nursery bed for seed sowing and explain its advantages

OR

b) Demonstrate seed treatment method used in nursery plants

Q4. Spotters (5 × 2 = 10 Marks)

Identify the following specimens and write their names and uses.

- **Propagules** – (Examples: tuber, bulb, rhizome, bulbil)
- **Nursery equipment** – 1 (Examples: hand trowel, khurpi, secateurs, rake)/ **Nursery media / material** – 1 (Example: coco peat, vermicompost)

Q5. Record Submission (5 Marks)

Evaluation of practical record based on:

- Completion of experiments
- Neatness and diagrams
- Observations and results

Q6. Submission of Plant pot/ 5 types of Seeds(5 Marks)

Questions based on nursery techniques and plant propagation

Total = 40 Marks

Assessment Pattern

Assessment Component	Marks
Summative Assessment (Practical Exam – End Semester)	40 Marks
Formative Assessment (Internal – C1 & C2)	10 Marks
Total	50 Marks