

**Certificate Course of Plant Propagation & Nursery
Management**
Code - SCC-07

Course Design: Credits-24

Maximum Marks: 100

Total Hours: 100

Theory Marks: 40

Lectures: 36 hrs.

Practical Marks: 60

Tutorials: 00 hrs.

Remedial: 04 hrs.

Field Work/Practicum: 60 hrs.

For Each Unit available total Hours: 25, out of which, for lectures: 9 hrs. Tutorial: 00 hrs., Field work: 15 hrs., Remedial: 01 hrs.

Learning outcomes of the course: After completion the course students will be able to-

- To develop skills and knowledge about plant propagating different types of plants by seed, cuttings, budding and grafting, separation, division and layering in a commercially viable way.
- To develop skills and knowledge about tools, equipment & growing structures used in a nursery for plant production & Nursery Management.
- To develop general skills in horticultural practices and plant identification.
- To develop entrepreneurial skills required to run a small-scale commercial nursery.

Unit-I Plant Propagation

- Sexual and asexual methods of propagation, advantages and disadvantages.
- Propagation Structures: Mist chamber, humidifiers, greenhouses, glasshouses, poly-houses, nursery (tools and implements), use of growth regulators in seed and

vegetative propagation, methods and techniques of cutting, layering, grafting and budding physiological & bio chemical basis of rooting, factors influencing rooting of cuttings and layering, graft incompatibility.

- Selection and maintenance of mother trees, collection of scion wood stick, scion-stock relationship, and their influences.

Practicum:

- Vegetative Propagation Techniques:
 - a. Asexual reproduction-importance, advantages
 - b. Propagation through stolons, runners, offsets, bulbs, corms, rooted crowns, division, cuttings layering

Unit-II Plants in Nursery

- Use of plants in Nursery
- Insect/pest/disease control in nursery.
- Nursery registration act.

Practicum:

- Nursery :
 - a. Gardening
- Plants :
 - I. Grafting and budding
 - II. Root stock-scion relationship
 - III. Top working
 - IV. Special practices in nursery management
- Case Study (*Case study & project report*)

Unit-III Fundamentals of Nursery

- Introduction to nursery
- Germination of seeds
- Seed dormancy and viability
- Establishment of Nursery

Practicum:

➤ Seed Propagation

- (i) Seed as propagule
- (ii) Germination of seeds
- (iii) Seed dormancy and viability
- (iv) Seed production- method of collection, processing, etc.
- (v) Seed treatment
- (vi) Classes of seed
- (vii) Seed testing
- (viii) Commercial vegetable seedling production

Unit-IV Applications of Nursery Management

- Seed production- method of collection, processing, etc.
- Factors affecting plant growth
- Plant growth regulators
- landscaping
- Knowledge about flowering plants their cultivation.

Practicum

➤ Marketing Skills:

- I. Small Scale Project management and appraisal – market, technical, social, financial analysis
- II. Market Management – concept planning for marketing target marketing and competitive strategy

Refences:

1. Arbury, J. (1997). *The complete book of plant propagation*. Taunton Press.
2. Beeton, M. (1888). *The Book of Household Management...* Ward, Lock, & Company.
3. Beyl, C. A., & Trigiano, R. N. (Eds.). (2016). *Plant propagation concepts and laboratory exercises*. CRC press.

4. Brunner, J. F., Willett, M. J., & Warner, G. M. (1993). Orchard pest management: a resource book for the Pacific Northwest.
5. Davidson, H., Mecklenburg, R., & Peterson, C. (2000). *Nursery management: administration and culture* (No. 635.068/D252). Upper Saddle River, NJ: Prentice Hall.
6. George, E. F. (1993). *Plant propagation by tissue culture. Part 1: The technology* (No. Ed. 2). Exegetics limited.
7. Hartmann, H. T., & Kester, D. E. (1975). *Plant propagation: principles and practices*. Prentice-Hall.
8. Hay, S. (2007). *Essential Nursery Management: A Practitioner's Guide*. Routledge.
9. Hvoslef-Eide, A. K., & Preil, W. (Eds.). (2005). *Liquid culture systems for in vitro plant propagation*. Springer Science & Business Media.
10. Ismi, S., Sutarmat, T., Giri, N. A., Rimmer, M. A., Knuckey, R. M., Berding, A. C., & Sugama, K. (2012). Nursery management of grouper: a best-practice manual. *Nursery management of grouper: a best-practice manual*.
11. Macdonald, B. (1986). *Practical woody plant propagation for nursery growers, volume I*. Timber press.
12. Mason, J. (Ed.). (2004). *Nursery management*. Landlinks Press.
13. Sadek, E., & Sadek, J. (2004). *Good practice in nursery management*. Nelson Thornes.
14. Sadhu, M. K. (1989). *Plant propagation*. New Age International.
15. Sharma, R. R., & Srivastav, M. (2004). *Plant propagation and nursery management*. IBDC Publishers.
16. Thompson, P. (1989). *Creative propagation: a grower's guide*. Portland: Timber Press.