

FACULTY OF LIFE SCIENCES

SYLLABUS

of

Certificate course

in

Nursery Development and Management (Botany)

Session: 2022-23



The Heritage Institution

**KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)**

Name of certificate Course: Nursery Development and Management

Duration: 6 months

Eligibility: Bachelor in Science

Method of Delivery: Offline

Examination Pattern: One paper each of theory and practical.

Credits: 1+1

Marks: 50

Course Contents: Theory

UNIT – I

Introduction to the nursery industry, nursery techniques, Importance, Types of nurseries, Nursery standards. Establishment of Nursery: Selection of site and location, Design, Irrigation and Drainage management. Propagation: Sexual, Asexual and tissue culture, role of plant hormones and disinfectants.

Seed dormancy (scarification & stratification) internal and external factors.

UNIT II

Soil and soil factors (pH, Nutrition). Growth media and potting mixers. Transplanting, Potting, pruning and in ground production. Selection and management of nursery stock, Criteria for selection, propagation material, its inspection, labelling and storage.

UNIT III

Plant breeding: Genetic improvement of plants, Mendel's principles, Plant reproduction and its phases, Genetic variations, sterility, hybrid crosses, Quantitative traits, Plant breeding programmes, Hybrid seed production, breeder's rights and trademarks.

UNIT IV

Pest and disease management – Cultural, physical, chemical and biological controls. Integrated pest management. Weed control methods.

Glasshouses, shade houses and other nursery structures, Management and marketing-packaging, retail and customer relations.

Practical:

1. Designing nursery layout.
2. Media for propagation of plants in nursery beds and pot.
3. Preparation of nursery beds and sowing of seeds.
4. Raising of rootstock.
5. Seed treatments for breaking dormancy and inducing vigorous seedling growth.
6. Preparation of plant material for potting.
7. Hardening plants in the nursery.
8. Practicing different types of cuttings, layering, graftings and buddings.
9. Preparation of plant growth regulators for seed germination and vegetative propagation.
10. Visit to a tissue culture laboratory.
11. Maintenance of nursery records.
12. Use of different types of nursery tools and implements for general nursery and virus tested plant material in the nursery. Cost of establishment of a mist chamber, greenhouse, glasshouse, polyhouse and their uses.
13. Nursery development business planning

Suggested Reading:

1. Krishnan, P. R., Kalia, R. K., Tewari, J. C., & Roy, M. M. (2014). Plant nursery management: principles and practices. Central Arid Zone Research Institute, Jodhpur, 40.
2. Ray, P.K. (2012). Plant Nursery Management: How to Start and Operate a Plant Nursery. Scientific Publishers.
3. Hartmann, H.T., Kester D.E., Davis, F.T and R.L Geneve (2010) Plant Propagation: Principles and practices (8th Edition)
4. Mason, J. (2004). Nursery management. Landlinks Press.
5. Sharma, R.R and Srivastav M (2004): Plant propagation and nursery management (First Edition) International Book Distributing Co.
6. Bose, T.K. Sanyal, D and Sandhu, M.L. (1998) Propagation of Horticultural crops. Naya Prakash Publishers, Kolkatta .
7. K. K. Nanda and V.K. Kochhar (1985). Vegetative propagation of plants. Kalyani Publisher- New Delhi-Ludhiana.
8. <http://ecoursesonline.iasri.res.in/course/view.php?id=133>