BOE513(REV22) **- Plant Propagation**

Teaching Hours:10/Unit

Course outcome:

- There are topics of basics on plant propagation. This helps to even nonbiology students to understand the subject better
- Apart from the basic theory of plant propagation, they will know the infrastructure available for modern plant propagation industry
- There is a chapter covering propagation through seeds. If this is perceived further, they can take up seed production as a career
- A detailed account of the established methods like cuttings, layering, grafting and budding are given. This can help them in establishing a nursery
- Tissue culture methods of propagation are also taught. They can take this up as a career choosing the required crops

Unit I:

History,scope and importance of plant propagation. Propagation structures - green house equipment and media. Modern plant propagation industry.

Unit II:

Biology and Environmental factors: Genetic control in propagation - sexual versus asexual, hormonal control of plant growth and development.

Microclimatic and edaphic factors.

Biotic factors - Pathogen and pest management. Post propagation care.

Unit III:

Seed propagation: Formation of fruit, seed and embryo, polyembrony and apomixes, hormones and seed development. Seed testing, seed storage, seed germination - types. Nursery techniques for transplant production.

Unit IV:

Vegetative propagation: Cuttings - advantages, types, source of cutting materials, rooting media.

Grafting - History, terminology, types - detached scion grafting, approach grafting, repair grafting.
Budding and layering - patch, ring and chip budding.
Layering - simple, tip, mound, air and trench layering.

Unit V:

Micropropagation: Culture techniques - Macro and micronutrients, growth regulators and media. General laboratory facilities and procedures. Hardening technique. Propagation methods for Banana, Orchid, Anthurium, Gladiolus.

Suggested Reading

Abbott, A.J. and Atkin, R.K.(9eds.)1987 Improving vegetatively propagated crops. Academic press, NewYork.

Bose, T.K., Sadhu, M.K.,& Das,P.,1986. Propagation of Tropical and Subtropical Horticultural crops, Nowya Prakash, Calcutta.
Hartmann and Kester,1983. Plantpropagation

Hartmann, H.T., Kester E.D., Davis, F.T., and Geneve, R.L. 1997.Plant propagation. Principles and practices. Prentice Hall of India Private Limited, NewDelhi.

Krishnamurthy.H.M.1981. Plant Growth substances including application in Agriculture.

L.M.Pierik 1987. In vitro culture of Higher plants Murtinus Nijhoff pub. Dordrecht.

M.K.Razdan1994. An Introduction to Plant tissue culture, Oxford and IBH Pub.Co.,PVT.Ltd., Bombay and Calcutta.

Mac Donald,B.1987. Practical woody plant propagation for nursery growers. Portland, OR: Timber press.

Sadhu,M.K.1989. Plant propagation Wiley eastern Ltd.N. Delhi.