



AOBO501: BEGINNERS BOTANY

Instructional Hours: 72

Credits: 3

Module 1- Basic architecture of plants (12 hours)

Plant groups (general features only), Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms; Dicots and Monocots; Parts of an angiosperm plant Root, Stem, Leaf. Functions of the different parts. Plant part modifications: Stem modifications, tuber, rhizome, bulb, corm, sucker, Root modifications, tuber, aerial roots , Leaf , function, phyllotaxy, simple and compound leaves

Module 2 – Plant growth and reproduction (12hours)

Growth in length, growth in girth, meristem, cambium, increase in girth, buds. Flower, parts, inflorescences, racemose and cymose, pollination, pollination agents, development of fruits and seeds, seed dispersal, parts of a seed,

Module 3- Plant propagation (12 hours)

Propagation through seeds, seed germination, vegetative propagation; stem, root and leaf cuttings, layering, grafting and budding

Module 4 – Plant Nutrition (12 hours)

Major nutrients, minor nutrients, sources of nutrients in soil, types of fertilizers; organic and inorganic fertilizers, green manure, biofertilizer, methods of applying fertilizers; base dressing, top dressing, liquid feeding, foliar feeding

Module 5 – Medicinal plants and their identification (12 hours)

Study of the common name , binomial and important medicinal uses of the following common medicinal plants of Kerala: *Eclipta alba*, *Vernonia cineraria*, *Emeliasonchifolia*, *Ocimum sanctum*, *Leucasaspera*, *Adhathodavasica*, *Boerhaviadiffusa*, *Scopariadulcis*, *Aeglemarmalose*, *Saracaashoka*, *Coleus umbonicus*, *Eupatorium ayapana*, *Rauwolfia serpentine*, *Alpiniagalanga*, *Achoruscalamus*, *Kaempheriagalanga*, *Andrographispaniculata*, *Terminaliacatapa*, *Terminaliatibula*, *Phyllanthusniruri* .

Module 6 – Applied botany (12 hours)

Totipotency of plant cells, *in vitro* plant propagation through tissue culture, advantages, requirements, aseptic techniques, basic composition of tissue culture medium, direct and indirect organogenesis, somatic embryo genesis, cell suspension culture, hardening of tissue culture plants. Somaclonal variation.

Edible and poisonous mushrooms, Mushroom cultivation, requirements and basic steps, detailed cultivation practices of Oyster mushroom

**Reference:**

1. Agarwal SK, 2008, *Foundation course in Biology*, Ane Books Pvt. Ltd., New Delhi.
2. Dwivedi J .N and R.B Singh (1990) *Essentials of Plant Techniques – Scientific Publishers*, Jodhpur.
3. Harold C Bold, 1999.*The Plant Kingdom*. Prentice Hall of India Pvt. Ltd.
4. GW Stout, DJ Taylor, 2008. *Biological Sciences*. NPO Green, University Press, Cambridge.