

1

BOT-HE-5016

Natural Resource Management

Total Lectures : 60 Credits : 6 (Theory - 4, Practical - 2)

1.1 THEORY

Unit 1 : *Natural resources*

Definition and types.

(2 lectures)

Unit 2 : *Sustainable utilization*

Concept, approaches (economic, ecological and socio-cultural).

(8 lectures)

Unit 3 : *Land*

Utilization (agricultural, pastoral, horticultural, silvicultural); Soil degradation and management.

(8 lectures)

Unit 4 : *Water*

Fresh water (rivers, lakes, groundwater, aquifers, watershed); Marine; Estuarine; Wetlands; Threats and management strategies.

(8 lectures)

Unit 5 : *Biological Resources*

Biodiversity-definition and types; Significance; Threats; Management strategies; Bio-prospecting; IPR; CBD; National Biodiversity Action Plan).

(10 lectures)

BOT-HC-5016

Reproductive Biology of Angiosperms

Total Lectures : 60 Credits : 6 (Theory - 4, Practical - 2)

11.1 THEORY

Unit 1 : *Introduction* (4 lectures)

History (contributions of G.B. Amici, W. Hofmeister, E. Strasburger, S.G. Nawaschin, P. Maheshwari, B.M. Johri, W.A. Jensen, J. Heslop-Harrison) and scope.

Unit 2 : *Reproductive development* (6 lectures)

Induction of flowering; flower as a modified determinate shoot. Flower development: genetic and molecular aspects.

Unit 3 : *Anther and pollen biology* (10 lectures)

Anther wall: Structure and functions, microsporogenesis, callose deposition and its significance. Microgametogenesis: Pollen wall structure, MGU (male germ unit) structure, NPC system; Palynology and scope (a brief account); Pollen wall proteins; Pollen viability, storage and germination; Abnormal features: Pseudomonads, polyads, massulae, pollinia.

Unit 4 : *Ovule* (10 lectures)

Structure; Types; Special structures: endothelium, obturator, oil, annule, and hysteresis