

Course code	Course Title	C	H	I	E	T
17P1BMC1	CRYPTOGAMS	6	6	25	75	100

**Unit I Algae 20 Hrs**

A brief history. Systematic classification by Fritsch. Indian phycologist. Range of thallus organization. Reproduction and life cycle patterns of algae - Cyanophyceae, Chlorophyceae, Bacillariophyceae, Phaeophyceae and Rhodophyceae. Ecology, cultivation, economic importance of algae.

**Unit II Lichens 20 Hrs**

Dual nature. Habitat. Types of association. Growth forms and thallus structure - leprose, crustose, foliose and fruticose. Vegetative propagules. Reproduction - ascohymental & ascolacunar lichens. Fruiting bodies - hamathecium types. Ecology and Environmental monitoring & economic importance of lichens.

**Unit III Bryophytes 20 Hrs**

Basic adaptations. Indian bryologists. Thallus organization. Liverworts, hornworts & mosses. Life cycle - gametophytic and sporophytic evolution. Reproduction in bryophytes – vegetative, asexual and sexual methods. Chromosomal organization in *Sphaerocarpus*. Sex determination in *Bryum* and *Mnium*.

**Unit IV Pteridophytes 20 Hrs**

General features. Life cycle patterns. Vascular organization and stelar evolution. Land plant adaptation. Organization and structure of sporophyte and spore producing organs. Gametophytic generation. Heterospory and seed habit.

**Unit V 10 Hrs**

Deviant mechanisms in life cycle - Apogamy, Apospory based on experimental evidences. Spore germination pattern. Evolution / deviation of sporophyte as shown by telome concept.

**REFERENCES**

1. Hale, M.E., The Biology of Lichens, 1983, Edward Arnold, London.
2. Lawrey, J.D., Biotic interaction in lichen community development; A-Review, 1991, Lichenologist.
3. Nash, T.H., Lichen Biology, 1996, Cambridge University Press, Cambridge.
4. Rashid, A., An Introduction to Bryophyta, 2000, Vikas Publishing House Pvt. Ltd., New Delhi.
5. Sharma, O.P., Text Book of Algae, 2007, Tata McGraw Hill Publishing House Pvt. Ltd., New Delhi.

6. Parihar, N.S., An Introduction to Embryophyta Bryophyta, 2013, Surjeet Publications, New Delhi.

### **PRACTICALS**

1. Critical examination of algal samples of different classes like Cynaophyceae, Chlorophyceae, Phaeophyceae, Rhodophyceae etc.,
2. Cultivation and maintenance of at least three fresh water algae.
3. Micropreparation of all the classes of lichens.
4. Critical examination and identification of bryophytes and pteridophytes at class level.
5. Study of fossil (*Rhynia*, *Lepidodendron*, *Lepidophyllum* and *Lepidocarpon*).
6. Students must be taken for field study.