354 BI 71 Evolutionary Botany. **12 Credits**

Course objective:

To explore development features of plants from the primitive stages to complexplants. This course combines the former354 BI 51, 354 BI 52and 354BI 56 to form one comprehensive course Evolutionary Botany. It emphasise on development features of plants from the primitive stages to complex plants. The practical section included as part of the course enable the student to integrate theory and practical skills for better understanding of the course.

Pre-Requisite:

800 BO 45 Advanced Biology II, Form VI Biology or Equivalent

Leaning outcome:

- To enable students:
- Classify and differentiate plant groups from lower to higher taxa
- Describe the evolutionary trend of different groups of plants and their evolutionary relationships.
- Explain Structure and morphology of Gymnosperm, Angiosperm and their modifications for adaptation to advanced environment.

Content:

Unit I

Theories of earth formation;the concept of evolution; early earth environment of plants.

Unit II

Prokaryotes, Algae, Bryophytes, Ferns and their Allies, mode of reproduction-Life cycle patterns and Economic importance.

Unit III

Gymnosperms and Angiosperms and their economic importance with detail study of their representative groups, Evolution of gametophytes and sporophytes in Bryophytes, Pteridophytes and their allies; Fungi, Structure and life cycle of representative members of the groups with emphasis on alternation of generations.

Unit IV

A detailed study of the morphology anatomy advanced genera like –Lycopodium, Selaginella, Equisetum, Adiantum and Marsilea. General characteristics, distribution, classification (Sporne, K.R). Vegetative, anatomical and reproductive characteristics of major divisions, Cycadophyta, Coniferophyta and Gnetophyta. Salient features of Pteridospermales, Bennettitales, Cycadales, Cordaitales, Coniferales and Gnetales.

Unit V

Angiosperm morphology adaptation and modification of roots, stems, leaves, fruits and seeds; aestivation and placentation.

Delivery mode

Lecture	Assignments	Practical	Independent study	Tutorial/field	Total
45	5	60	10	-	120

Assessment: 40% Coursework; 60% final examination.

Suggested readings

1. Pandey, SN; Trivedi, PS & Misra, SP 1996. A textbook of Botany, Vol. I. Vikas; Publishing House PVT Ltd.
2. Pandey, SN; Trivedi, PS & Misra, SP 1998. A textbook of Botany. 11th Revised Edition, Vol. II. Vikas Publishing House PVT Ltd.
3. Singh V, Pande PC & Jain OK. 2003, A text book of Botany, Rastogi Publications, Meerut
4. Dutta, AC. 1999. Botany for Degree Students. Oxford University Press, Calcutta.
5. Stern KR. 1994. Introductory Plant biology. WC Brown Publishers, Iowa.
6. Keeton, WT. and Gould, JL, 1986. Biological Sciences. 4thEdition, W.W. Norton & Company, New York.
7. Willis, KJ & McElwain, JC 2002. The Evolution of Plants. Oxford University Press, Oxford
8. Prem Puri. 2001. Bryophytes –morphology growth and differentiation. Atma Ram & Sons. Lucknow.