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Lesson Plan

Swami Shraddhanand College
(University of Delhi)
Alipur, Delhi- 1100036

Name of Teacher	**Prof. Geeta Saxena**	**Department**	**Botany**
Course	**B. Sc. Hons Botany**	**Semester**	**III**
Paper	**Phycology -The World of Algae DSC-7**	**Academic Year**	2023 -24

Learning Objectives
To provide students with in-depth knowledge of the unique group of algae that are the primary photosynthetic organisms.

Learning Outcomes By studying this course students will gain basic knowledge on algae, with reference to:
- the diversity and general characteristics.
- distinguishing features of genera belonging to different families.
- the various ecological and economic benefits.

Lesson Plan

Week No. with Dates	Theme/ Curriculum
1. 16th Aug- 22th Aug	**Unit 1: Introduction to Algal World:** Relevance of studying algae – Industrial (food, feed, fodder), Environmental (climate change, biofuel, acidification of oceans), Evolutionary (range of thallus organization); General characteristics; Ecology, diversity and distribution; Range of thallus organization; Cell structure; Criteria for classification (cell wall, pigment system, reserve food,

	flagella);
2. 23th Aug-29th Aug	Unit 1 : Reproduction and life cycle patterns; Classification by Fritsch; Evolutionary classification of Lee (only up to groups)
3. 30th Aug-6th Sep	Unit 1 :Significant contributions of eminent Phycologists **Unit 2: Cyanophyceae (Blue-Green Algae)** General characteristics; Occurrence; Cell structure
4. 7th Sep-13th Sep	**Unit 2: Cyanophyceae (Blue-Green Algae)** Heterocyst (structure and function) Morphology, reproduction and life-cycle of ***Nostoc***, economic importance
5. 14th Sep- 20th Sep	**Unit 3: Chlorophyceae (Green Algae)** General characteristics; Occurrence; Cell structure; Morphology, reproduction and life-cycle of ***Chlamydomonas***, ***Volvox***
6. 21st Sep-27th Sep	**Unit 3: Chlorophyceae (Green Algae)** General characteristics; Occurrence; Cell structure; Morphology, reproduction and life-cycle of ***Ulva***, ***Oedogonium***, ***Coleochaete***
7. 28th Sep-4th Oct.	**Unit 3: Chlorophyceae (Green Algae)** General characteristics; Occurrence; Cell structure; Morphology, reproduction and life-cycle of ***Chara***. Structure and evolutionary significance of ***Prochloron***, economic importance.
8. 5th Oct- 11th Oct	**Unit 4: Xanthophyceae (Yellow-Green Algae** General characteristics; Occurrence; Morphology, reproduction, and life-cycle of ***Vaucheria***, economic importance
9. 12nd .-18th Oct	**Unit 5: Bacillariophyceae (Diatoms) and Dinophyceae (Dinoflagellates)** General characteristics, Occurrence, morphology, unique features**,** economic importance.
10. 19th Oct- 25th Oct	**Unit 6: Phaeophyceae (Brown Algae)** General characteristics; Occurrence; Morphology, reproduction, and life-cycle of ***Ectocarpus***, economic importance.
11. 26th Oct- 1st Nov	**Unit 6: Phaeophyceae (Brown Algae)** General characteristics; Occurrence; Morphology, reproduction, and life-cycle of ***Sargassum***, economic importance.

12. 2nd Nov-8th Nov	**Unit 7: Rhodophyceae (Red Algae)** General characteristics; Occurrence and Morphology and of *Polysiphonia*
13. 9th Nov- 15th Nov	**Unit 7: Rhodophyceae (Red Algae)** Reproduction, and life-cycle of *Polysiphonia* economic importance.
14. 16th Nov – 22nd Nov	**Class Test 20 November 2023**
15. 23rd Nov-29th Nov	**Unit 8:** Model systems and their applications in genetic, molecular and evolutionary studies.
16. 30th Nov – 7th Dec	Revision
8th Dec	**Dispersal of classes and practical examination begin**

Books	1. Bold, H.C. and Wynne, M.J. (1985). Introduction to the Algae: Structure and Reproduction, 2nd edition. Prentice-Hall International INC. 2. Kumar, H.D. (1999). Introductory Phycology, 2nd edition. Affiliated East-West Press, New Delhi. 3. Lee, R.E. (2018). Phycology, 4th edition: Cambridge University Press, Cambridge. 4. Sahoo, D. and Seckbach, J. (2015). The Algae World. Springer, Dordrecht. 5. Sahoo, D. (2000).Farming the Ocean: Seaweed Cultivation and Utilization. AravaliBook International, New Delhi.
Online Resources (If Any)	**1** **2** **3** **4**

Assignment and Class Test Schedule for Semester Assignment:

1 November 2023

Class Test: 20 November 2023