UNIVERSITY OF MADRAS

B.Sc. DEGREE PROGRAMME IN PLANT BIOLOGY
AND PLANT BIOTECHNOLOGY
SYLLABUS WITH EFFECT FROM 2023-2024

CORE-II PLANT DIVERSITY I ALGAE - PRACTICAL-I

Title of the Course		**PLANT DIVERSITY – I: ALGAE Practical I**					
Paper Number		CORE II					
Category	Core	**Year**	**I**	**Credits**	**5**	**CourseCode**	139C11
		Semester	**I**				
Instructional Hours per week		**Lecture**		**Tutorial**	**Lab Practice**		**Total**
		2		**-**	**3**		**5**
Pre-requisite	Students should be familiar with the basics of algae.						

Learning Objectives	
C1	To develop skills to identify algae based on habitat, thallus structure and the internal organization.
C2	To identify microalgae in a mixture.
C3	To develop skills to prepare the microslides of algae.
C4	To study the economic importance of few species.
C5	To understand importance of algae to animals and humans

Course outcomes: CO	**On completion of this course, the students will be able to**	**Programme outcomes**
CO1	Recall and identify algae using key identification characters.	K1
CO2	Demonstrate practical skills in preparation of fresh mount and identification of algal forms from algal mixture.	K2
CO3	Describe the internal structure of algae prescribed in the syllabus.	K3
CO4	Decipher the algal diversity in fresh/marine water and their economic significance.	K4
CO5	Evaluate the various techniques used to culture algae for commercial purposes.	K5

EXPERIMENTS	
1. Micro-preparation of the types prescribed in the syllabus. 2. Identifying the micro slides relevant to the syllabus. 3. Identifying types of algal mixture. 4. Immobilization of Algal cells with Alginate –(i) BBM (ii) BG11 5. Economic importance of Algae as: (i) Food (ii) Feed (iii) Biofertilizers (iv) Seaweed liquid fertilizer (v) Agar Agar (vi) Alginate (vii) Diatomaceous earth. 6. Field visit to study fresh water/marine water algal habitats. 7. Visit to nearby industry actively engaged in algal technology.	
Extended Professional Component (is a part of internal component only, Not to be included in the External Examination question paper)	Questions related to the above topics, from various competitive examinations UPSC / TRB / NET / UGC – CSIR / GATE / TNPSC /others to be solved (To be discussed during the Tutorial hour)
Skills acquired from this course	Knowledge, Problem Solving, Analytical ability, Professional Competency, Professional Communication and Transferrable Skill
Recommended Texts	1. Kumar, H.D. 1999. Introductory Phycology. Affiliated East-West Press, Delhi. 2. Bendre, M. Ashok and Ashok Kumar, A. 2020. Text Book of Practical Botany-1 (10^{th} ed).Rastogi Publications, Meerut. 3. Round, FE. 1984.The Ecology of Algae. Cambridge University Press. 4. Aziz, F and Rasheed, R. 2019. A Course Book of Algae. Publisher: University of Sulaimani.ISBN: 978-9922-20-391-1. 5. Singh, Pandey and Jain. 2020. A text book of Botany, 5th Edition, Rastogi Publication, Meerut.
Reference Books:	1. Nancy Serediak and M. Huynh. 2011. Algae identification lab Guide. Accompanying 2. manual to algae identification field guide, Ottawa Agriculture and Agri

	food Canada publisher. 3. Chapman, V.J and Chapaman, D.J. 1960.The Algae, ELBS & MacMillan, London. 4. Lee, R.D. 2008.Phycology 4th Edition, Cambridge University Press, New York. 5. Dehradun. Edwardlee, R. 2018. Phycology, 5th Ed., Cambridge University Press, London.
Web resources:	1. https://www.amazon.in/Practical-Manual-Algae-Sundara-Rajan/dp/8126106492 2. https://books.google.co.in/books/about/Practical_Manual_of_Algae.html?id= 8d5DAAAACAAJ&redir_esc= 3. https://freebookcentre.net/biology-books-download/Concepts-of-Botany-Algae-(PDF-21P).html 4. https://www.ebooks.com/en-in/book/210152662/algae/sachin-kumar-mandotra/ 5. https://books.google.co.in/books/about/Algae.html?id=s1P855ZWc0kC&redir_esc=y

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	3	2	1	2	3	2	1
CO 2	3	3	2	2	3	3	2	3	3	3
CO 3	2	2	3	3	1	2	1	3	1	2
CO 4	3	3	3	3	3	2	3	3	3	2
CO 5	3	3	2	2	2	3	3	3	2	3

S-Strong (3) **M-Medium (2)** **L-Low(1)**