UNIVERSITY OF MADRAS

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

PROJECT WITH VIVA-VOCE

CORE PROJECT WITH VIVA-VOICE

Title of the Course	**PROJECT WITH VIVA-VOCE**						
Paper Number	**Project with Viva-Voce**						
Category	Core	**Year**	**III**			**Course Code**	339C52
		Semester	**V**	**Credits**	4		

Instructional Hours per week	**Lecture**	**Tutorial**	**Lab Practice**	**Total**
	1	-	3	4

Pre-requisite	To allow students to demonstrate the personal abilities and skills required to produce and present an extended piece of work and as well as to practice writing thesis.
Learning Objectives	1.To recognize the concept of research and its various forms in the context of botany.
	2.To improve abilities relating to scientific experiments.
	3.To become proficient in data collection and the documentation of scientific findings.
	4.To prepare students for entry-level positions or professional training programmes in any field of Botany.
	5.Compare the various reporting and writing styles used in science.

UNIT	**CONTENTS**
I	1. Each student will be allotted a Project Guide from the faculty of the department concerned by lot method. 2. The topic of the project shall be assigned to the candidate before the beginning of third semester. 3. After the completion of the project work, the student has to submit four copies of project with report carrying his/her project report for evaluation by examiners. After evaluation, one copy is to be retained in the College Library.

	4. Project work will be evaluated by both the external and the internal (Project Guide) examiners for the maximum of 100 marks in total on the scale of the maximum of 40 marks for the internal and the external each. 5. Viva-voce will be conducted by the panel comprising, External examiner and Internal Examiner for the maximum of 100 marks in total on the scale of the maximum of 50 marks for the internal and the external each.
II	All the candidates of B.Sc (Botany) are required to undergo a major project and submit the following: 1. Project based on the work done by the student. 2. Soft copy of the project on CD/DVD. **PROJECT EVALUATION GUIDELINES:** **The project is evaluated on the basis of following heads:** For Viva-Voce maximum is 60 marks which will be conducted by both the internal and external examiners during end semester university practical examinations. **Internal:** 40 marks I Review– Selection of the field of study, topic and literature collection - 15 marks II Review – Research design and data collection - 10 marks III Review– Analysis and conclusion, preparation of rough draft - 15 marks **External:** 60 marks Project - 30 marks Presentation - 15 marks Viva-voce - 15 marks
III	**Suggested areas of work:** Algae, fungi, Bryophyttes, Pteridophytes, Gymnosperms, microbiology, biocontrol agents, plant tissue culture, plant physiology, phytochemistry, biochemistry, anatomy, embryology, plant taxonomy, Ethnobotany, ecology, sustainable agriculture, herbal formulations, cytogenetics, molecular biology,

	biotechnology, bioinformatics, nanotechnology and applied botany.
IV	**Methodology:** **Each project should contain the following details:** 1. Brief introduction on the topic 2. Review of Literature 3. Materials and Methods 4. Results and Discussion – evidences in the form of figures, tables and photographs. 5. Summary 6. Bibliography

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 / 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. Wilson, K and J. Walker (Eds). 1994. Principles and Techniques of PracticalBiochemistry (4th Edition) Cambridge University Press, Cambridge.
2. Bendre, A.M and Ashok Kumar. 2009. A text book of practical Botany. Vol. I & II.Rastogi Publication. Meerut. 9th Edition.
3. Manju Bala, Sunita Gupta, Gupta, N.K. 2012. Practicals in Plant Physiology and Biochemistry. Scientific Publisher.
4. Wilson, K and J. Walker. 2005. Principles and Techniques of Practical Biochemistry, 5th Edition. Cambridge University press, New York.
5. Rodney Boyer. 2000. Modern Experimental Biochemistry, 3rd Edition. Published byAddison

Wesley Longman. Singapore.

Reference Books:

1. Dawson, C. 2002. Practical research methods. UBS Publishers, New Delhi.
2. Stapleton, P., Yondeowei, A., Mukanyange, J., Houten, H. 1995. Scientific writing for agricultural research scientists – a training reference manual. West Africa Rice Development Association, Hong Kong.
3. Ruzin, S.E. 1999. Plant microtechnique and microscopy. Oxford University Press, New York, U.S.A.
4. Wilson and Goulding. 1987. Principles of biochemical techniques, Oxford University Press.
5. Mukherji, S. and Ghosh, A.K. 2005. Plant Physiology. First Central Edition, New Central Book Agency (P) Ltd., Kolkata.
6. Taiz, L and Zeiger, E. 2010. Plant Physiology. 5th Edition. Sinauer Associates, USA.
7. Heldt, H.W and Piechulla, B. 2010. Plant Biochemistry, 4th Edition. Academic Press, NY.
8. Wilson, K and Walker, J. 2010. Principles and Techniques of Biochemistry and Molecular Biology, Seventh edition, Cambridge University Press, USA.

Web resources:

1. https://handbook.monash.edu › units › BIO3011
2. https://www.amazon.in/Practical-Manual-on-Plant-Biochemistry/dp/6200539790
3. https://www.amazon.in/Laboratory-Manual-Physiology-Mukesh-Amaregouda/dp/6133993502
4. https://www.kopykitab.com/A-Laboratory-Manual-of-Plant-Physiology-Biochemistry-and-Ecology-by-Akhtar-Inam
5. https://kau.in/document/laboratory-manual-biochemistry

Mapping with Programme Outcomes:

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

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