LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF) FOR POSTGRADUATE PROGRAMMES

(Academic Year 2025-2026 onwards)

PG & RESEARCH DEPARTMENT OF BOTANY

(DST FIST Sponsored Department)

(Supported under DBT's STAR COLLEGE SCHEME)

M.Sc., BOTANY

Estd. 1919

NATIONAL COLLEGE

(AUTONOMOUS)

(Nationally Re-accredited at 'A' Grade by NAAC in 4th Cycle)

TIRUCHIRAPPALLI - 620 001

VISION AND MISSION OF
THE PG & RESEARCH DEPARTMENT OF BOTANY

VISION	Develop the students with solid knowledge in Botany for efficient use and management of biological resources towards sustainable development.
MISSION	Spread knowledge and transmit skills for employability, innovation in research and entrepreneurship in Plant Science.

PG & RESEARCH DEPARTMENT OF BOTANY
PROGRAMME OUTCOMES

PO1	**Disciplinary Knowledge:** Students will be capable of demonstrating comprehensive knowledge and understanding of various concepts of Plant and Allied Sciences through Undergraduate and Postgraduate Programmes of study. As a result of this student get transformed into skilled professionals adhering to the values of sustainable living.
PO2	**Communication Skills:** Students will acquire the ability to express thoughts and ideas effectively in writing and orally. They will be able to communicate with others using appropriate media and also confidently share one's views and express herself / himself. Students will demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups.
PO3	**Critical thinking, Problem-Solving and Analytical Reasoning:** The capacity of the students to apply analytic thoughts through analyses, evaluation, arguments, claims, and beliefs on the basis of empirical evidence will be strengthened. The students will be able to identify relevant assumptions or implications and shall formulate coherent arguments. They will be able to critically evaluate practices, policies and theories by following scientific approach to knowledge development. Students will have the capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations. Student will attain the ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyse and synthesise data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints in the field of Plant and Applied Sciences.
PO4	**Reflective thinking & Scientific Reasoning. Teamwork with Leadership qualities:** Students will develop critical sensibility to lived experiences, with self-awareness and reflexivity of both self and society. They will be able to analyze, interpret and draw conclusions from quantitative/ qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective. Students will acquire the ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team. They will have the potential of mapping out the tasks of a team or an organization, setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.
PO5	**Moral and Ethical Awareness - Appreciating Environmental and Sustainability Issues** Students will understand and contextualize environmental and ethical issues and contribute towards the betterment of the environment and sustainable growth. They will have the ability to embrace moral / ethical values in conducting one's life, formulate a position/ argument about an ethical issue from multiple perspectives, and use ethical practices in all work. They will become capable of demonstrating the ability to identify ethical issues related to one's work, avoid unethical behaviour such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights; appreciating environmental and sustainability issues; and adopting objective, unbiased and truthful actions in all aspects of work.
PO6	**Multicultural competency and Self-directed lifelong learning:** Students will develop multicultural competency and will engage in self-paced and self-directed lifelong learning through digital literacy for personal development and professional accomplishment. Students will possess knowledge of the values and beliefs of multiple cultures and a global perspective; and will develop capability to effectively engage in a multicultural society and interact respectfully with diverse groups. They will have the ability to work independently, identify appropriate resources required for a project, and manage a project through to completion. They will also be able to acquire knowledge and skills, including 'learning how to learn', that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/reskilling and deskilling.

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PROGRAMME SPECIFIC OUTCOMES

PSO 1	Identify and classify the plants by using the key characters. Prepare and view specimens for examination using through microscopy and other tools. Use pure culture and selective techniques to isolate fungi, plant pathogens, algae and identify them growing on media.
PSO 2	Qualitatively and quantitatively estimate the number of floral components by using enumeration and suitable sampling, tools and techniques. Procure the knowledge of teaching plant science to wider audience.
PSO 3	Use appropriate plant molecular techniques and use of instrumentation related to it.
PSO 4	Documentation and report writing on experimental protocols, results and conclusions, study tours and filed visits etc. Become focused to take up Research and Teaching opportunities
PSO 5	Practice safe laboratory procedures, using appropriate protective, biosafety and emergency procedures.
PSO 6	Prepare themselves for competitive exams like TNPSC, UPSC, SET, CSIR, UGC, ICAR NET, TRB.

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(DST FIST Sponsored Department)
(Supported under DBT's STAR COLLEGE SCHEME)
NATIONAL COLLEGE (AUTONOMOUS)
(Nationally Re-accredited at 'A+' Grade by NAAC in 3rd Cycle)
(College with Potential for Excellence)
TIRUCHIRAPPALLI - 620 001.

M.Sc., BOTANY

Learning Outcomes based Curriculum Framework (LOCF)
Choice Based Credit System (CBCS)
(Applicable to the candidates admitted from the academic year 2025-2026 onwards)

COURSE PATTERN

Sem	Course	Code	Course Title	Ins. hours /week	Credit	Exam Hr	Marks			Total
							CIA	W	O	
I	Core Course – (CC1)	P25BO1	Plant Diversity-I (Algae, Fungi & Bryophytes)	6	5	3	25	75	-	100
	Core Course – (CC2)	P25BO2	Plant Diversity-II (Pteridophytes, Gymnosperms & Paleobotany)	6	5	3	25	75	-	100
	Core Course – (CC3)	P25BO3	Microbiology, Plant Pathology & Phyto Immunology	6	5	3	25	75	-	100
	Core Course – (CC4)	P25BO4P	Practical-1 (Pertaining to Core Courses 1, 2, 3 & EC1)	6	5	3	25	70	5	100
	Elective Course – (EC1)	P25BO5E1	Ecology, Phytogeography & Conservation Biology	6	4	3	25	75	-	100
		P25BO5E2	Microalgal Technology	6	4	3	25	75	-	
		P25BO5E3	Bio-Resource Management	6	4	3	25	75	-	

	Total			**30**	**24**	**-**	**-**	**-**	**-**	**500**
II	Core Course – (CC5)	P25BO6	Anatomy & Embryology	6	5	3	25	75	-	100
	Core Course – (CC6)	P25BO7	Angiosperm Taxonomy	6	5	3	25	75	-	100
	Core Course – (CC7)	P25BO8	Genetics & Plant Breeding	6	5	3	25	75	-	100
	Core Course – (CC8)	P25BO9P	Practicals - 2 (Pertaining to Core Courses 5, 6, 7 & EC 2)	6	5	3	25	70	5	100
	Elective Course – (EC2)	P25BO10E1	Organic Farming & Horticulture	6	4	3	25	75	-	100
		P25BO10E2	Ethnobotany	6	4	3	25	75		
		P25BO10E3	Industrial Botany	6	4	3	25	75		
	Total			**30**	**24**	**-**	**-**	**-**	**-**	**500**
III	Core Course – (CC9)	P25BO11	Biochemistry	6	5	3	25	75		100
	Core Course – (CC10)	P25BO12	Plant Physiology	6	5	3	25	75		100
	Core Course – (CC11)	P25BO13P	Practical-3 (Core Courses 9, 10 & EC3, EC4)	6	5	3	25	70	5	100
	Elective – (EC3)	P25BO14E1	Morphogenesis and Plant Tissue Culture	6	4	3	25	75		100
		P25BO14E2	Herbal Medicine	6	4	3	25	75		
		P25BO14E3	Floriculture and Landscaping	6	4	3	25	75		
	Elective - (EC4)	P25BO15E1	Genetic Engineering	6	4	3	25	75		100
		P25BO15E2	Bioprospecting, Drug Discovery and Product Development	6	4	3	25	75		
		P25BO15E3	Food Processing and Preservation	6	4	3	25	75		

	Total			**30**	**23**					**500**
IV	Core Course – (CC12)	P25BO16	Research Methodology	6	5	3	25	75		100
	Core Course – (CC13)	P25BO17	Bioprocess Technology	6	5	3	25	75		100
	Elective – (EC5)	P25BO18E1	Bioinformatics	6	4	3	25	75		100
		P25BO18E2	Entrepreneurial Opportunities in Botany	6	4	3	25	75		
		P25BO18E3	Intellectual Property Rights and Patenting	6	4	3	25	75		
	Project	P25BO19	Project Work	12	5		75	25		100
	Total			**30**	**19**					**400**
	Grand Total			**120**	**90**					**1900**