LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF) FOR UNDERGRADUATE PROGRAMMES

(Academic Year 2025-2026 onwards)

PG & RESEARCH DEPARTMENT OF BOTANY

(DST FIST Sponsored Department)
(Supported under DBT's STAR COLLEGE SCHEME)

B.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 Botany.

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.

PG & RESEARCH DEPARTMENT OF BOTANY

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(Supported under DBT's STAR COLLEGE SCHEME)

PROGRAMME SPECIFIC OUTCOMES

PSO 1	Understand biodiversity and gain knowledge on morphological and anatomical features of microorganisms, algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms.
PSO 2	Describe the process of morphogenesis and reproduction in microorganisms, algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms.
PSO 3	Create the awareness on the ecosystems, plant resources and conservation of plant wealth.
PSO 4	Strengthening the knowledge on the internal structure of the plants, plant systematics, evolution and comprehend the basics of genetics, inheritance and molecular biology.
PSO 5	Acquire knowledge on the function of plants, interaction between plants and microbes and plant disease management.
PSO 6	Demonstrate skills in advanced techniques in plant sciences and biotechnology and acquire academic excellence in plant sciences to pursue higher studies, research and employability.

PG & RESEARCH DEPARTMENT OF BOTANY
(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.

B.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.	Part	Course	Code	Course Title	Ins. hours /week	Credit	Marks			Total
							CIA	W	O	
I	I	Language – I	U25T1/H1/S1	Tamil/Hindi/Sanskrit	6	3	25	75	–	100
	II	English – I	U25E1	Prose for Communication	6	3	25	75	–	100
	III	Core Course – I	U25BO1	Algae and Bryophytes	5	5	25	75	–	100
		Core Course – II	U25BO2P	Practical -I (Pertaining to CC-I)	3	–	–	–	–	–
		First Allied Course – I	U25ACH1	Allied Chemistry-I	5	3	25	75	–	100
		First Allied Course – II	U25ACH2P	Allied Chemistry Practical (U25ACH1)	3	–	–	–	–	–
	IV	Environmental studies	U25ES	Environmental studies (Revised Syllabus as per UGC norms - 2019)	2	2	25	75	–	100
		Total			**30**	**16**				**500**
II	I	Language Course - II	U25T2/H2/S2	Tamil/Hindi/Sanskrit	6	3	25	75	–	100
	II	English – II	U25E2	English Through Intensive Reading	4	2	25	75	–	100
		Communicative English - I	U25CE1	Course-I (CEC-I)	2	1	25	70	5	100
	III	Core Course – II	U25BO2P	Practical - I (CC-I & CC-III)	3	6	25	70	5	100

		Core Course - III	U25BO3	Fungi and Plant Pathology	5	5	25	75	–	100
		First Allied Course - II	U25ACH2P	Chemistry Practical (U25ACH1 & U25ACH3)	3	3	25	70	5	100
		First Allied Course-III	U25ACH3	Allied Chemistry –II	5	3	25	75	–	100
	IV	Skill Based Elective - I	U25BOSBE1	Signature of the Coordinatorlizer and Biopesticides	2	2	25	75	–	100
		Total			**30**	**25**				**800**
III	I	Language – III	U25T3/H+-3/S3		6	3	25	75	–	100
	II	English – III	U25E3	Reading Poetry and Drama	6	3	25	75	–	100
	III	Core Course - IV	U25BO4	Pteridophytes, Gymnosperms & Paleobotany	4	4	25	75	–	100
		Core Course – V	U25BO5P	Practicals (CC-IV)	3	–	–	–	–	–
		Second Allied Course - I	U25AZY1	Allied Zoology –I	4	3	25	75	–	100
		Second Allied Course – II	U25AZY2P	Allied Zoology Practical (U25AZY1)	3	–	–	–	–	–
	IV	Skill Based Elective Course - II	U25BOSBE2	Mushroom Technology	2	2	25	75	–	100
		Skill Based Electives - III	U25BOSBE3P	SBE PRACTICAL (U25BOSBE1 & U25BOSBE2)	2	2	25	70	5	100
		Total			**30**	**17**				**600**
IV	I	Language – IV	U25T4/H4/S4		6	3	25	75	–	100
	II	English – IV	U25E4	English for Competitive Examination	4	2	25	75	–	100
		Communicative English – II	U25CE2	Course-I (CEC-II)	2	1	25	70	5	100
	III	Core Course – V	U25BO5P	Practicals (CC-IV & CC-VI)	3	5	25	70	5	100
		Core Course - VI	U25BO6	Plant Anatomy & Embryology	4	4	25	75	–	100
		Second Allied Course - II	U25AZY2P	Allied Zoology Practicals (U25AZY1 & U25AZY3)	3	3	25	70	5	100
		Second Allied Course - III	U25AZY3	Allied Zoology – -III	5	3	25	75	–	100
	IV	Non-Major Elective - I			2	2	25	75	–	100
		Value Education	U25VE	Value Education	1	2	25	75	–	100
		Total			**30**	**25**				**900**

V	III	Core Course - VII	U25BO7	Morphology, Taxonomy and Economic Botany	5	5	25	75	–	100
		Core Course - VIII	U25BO8	Cell and Molecular Biology	5	5	25	75	–	100
		Elective Course - EC1	U25BO9E	Biochemistry, Biophysics and Bioinstrumentation	5	4	25	75		100
		Elective Course –EC2	U25BO10E	Microbiology	5	4	25	75		100
		Core Course - IX	U25BO11P	Practicals (CC-VII, EC1 & EC2)	3	--				
		Core Course – X	U25BO12P	Practicals (CC-VIII, XI, XII & XIII)	3	--				
	IV	Non-Major Elective - II			2	2	25	75	–	100
		Soft Skills	U25SS	Soft Skills	2	2	25	75		100
		Total			**30**	**22**				**600**
VI	III	Core Course - IX	U25BO11P	Practicals (CC-VII, EC1 & EC2)	3	5	25	70	5	100
		Core Course – X	U25BO12P	Practicals (CC-VIII, XI, XII & XIII)	3	6	25	70	5	100
		Core Course - XI	U25BO13	Genetics, Evolution and Plant Breeding	6	6	25	75	–	100
		Core Course – XII	U25BO14	Plant Physiology	6	6	25	75	–	100
		Core Course –XIII	U25BO15	Biotechnology	6	6	25	75	–	100
		Elective course – EC3	U25BO16E	Biostatistics and Bioinformatics	5	4	25	75	–	100
	V	Gender Studies	U25GS	Gender Studies	1	1	25	75	–	100
		Extension Activities (EA)			–	1	–	–	–	–
		Total			**30**	**35**				**700**
		Grand Total			**180**	**140**				**4100**

COURSES OFFERED TO OTHER DEPARTMENT

Sem.	Part	Course	Code	Course Title	Ins. hours /week	Credit	Marks			Total
							CIA	W	O	
III	III	Second Allied Course – AC1	U25BOA1	Plant Diversity, Taxonomy, Anatomy, Embryology, Plant Pathology and Ethnobotany	5	3	25	75	–	100
	III	Second Allied Course – AC 2	U25BOA2P	Allied Botany Practicals (AC-I)	3	–	–	–	–	–
IV	III	Second Allied Course - AC 2	U25BAO2P	Allied Botany Practicals (AC 1 & 2)	3	3	25	75	–	100
	III	Second Allied Course – AC 3	U25BOA3	Cytology, Genetics, Evolution, Plant Physiology, Ecology and Biotechnology	5	3	25	75	–	100
	IV	Non-Major Elective – 1	U25BONME1	Horticulture	2	2	25	75	–	100
V	IV	Non-Major Elective – 2	U25BONME2	Bioinoculants and Biopesticides	2	2	25	75	–	100

EXTRA CREDIT COURSES OFFERED

Sem.	Part	Course	Code	Course Title	Ins. hours /week	Self Study Hr / week	Credit	Marks			Total
								CIA	W	O	
IV		Extra Credit Course – ECC1	U25BOECC1	**Microbes in History**	1	3	4	25	75	–	100
V		Extra Credit Course – ECC2	U25BOECC2	**Geomicrobiology**	1	3	4	25	75	–	100