

Holy Cross College (Autonomous), Nagercoil
Kanyakumari District, Tamil Nadu.
Accredited with A⁺ by NAAC - IV cycle – CGPA 3.35

Affiliated to
Manonmaniam Sundaranar University, Tirunelveli



Semester I & II

POs, PSOs & COs

DEPARTMENT OF BOTANY



2023-2026

(With effect from the academic year 2023-2024)

Programme Educational Objectives (PEOs)

PEOs	Upon completion of B.A/B.Sc. Degree Programme, the graduates will be able to:	Mapping with Mission
PEO 1	apply appropriate theory and scientific knowledge to participate in activities that support humanity and economic development nationally and globally, developing as leaders in their fields of expertise.	M1& M2
PEO 2	use practical knowledge for developing professional empowerment and entrepreneurship and societal services.	M2, M3, M4 & M5
PEO 3	pursue lifelong learning and continuous improvement of the knowledge and skills with the highest professional and ethical standards.	M3, M4, M5 & M6

Programme Outcomes (POs)

POs	Upon completion of B.Sc. Degree Programme, the graduates will be able to:	Mapping with PEOs
PO1	obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science.	PEO1
PO2	create innovative ideas to enhance entrepreneurial skills for economic independence.	PEO2
PO3	reflect upon green initiatives and take responsible steps to build a sustainable environment.	PEO2
PO4	enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career.	PEO1 & PEO3
PO5	communicate effectively and collaborate successfully with peers to become competent professionals.	PEO2&PEO3
PO6	absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality	PEO2 & PEO3
PO7	participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PEO1&PEO3

Program Specific Outcomes (PSOs)

On successful completion of the B.Sc. Botany program, the students are expected to:		Mapping with Pos
PSO1	implement the concept of science and technology to foster the traditional and modern techniques for solving the complex problems in Plant Biology.	PO4
PSO2	ensure the use of contemporary tools and techniques in understanding the scope and significance of Botany	PO1& PO3
PSO3	develop the scientific problem solving skills during experimentation, research projects, analysis and interpretation of data	PO4 & PO7
PSO4	design scientific experiments independently and to generate useful information to address various issues in Botany.	PO6 & PO7
PSO5	enhanced capacity to think critically; ability to design and execute experiments independently and/or team under multidisciplinary settings	PO2 & PO5
PSO6	design and standardize protocols for public health and safety, and cultural, societal, and environmental considerations	PO6 & PO3
PSO7	apply appropriate techniques, resources, and modern ICT tools for understanding plant resources.	PO2 & PO7
PSO8	demonstrate the contextual knowledge in sustainable exploitation of medicinal, economically important and endangered plants as per the National Biodiversity Act.	PO6
PSO9	follow the concept of professional ethics and bioethics norms for practicing the value of plant kingdom.	PO6
PSO10	communicate proficiently with various stakeholders and society, to comprehend and to write and present reports effectively	PO4 & PO6

Mapping of PO'S and PSO'S

POs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
PO 1	3	3	3	3	3	2	3	2	2	3
PO 2	3	3	3	3	3	2	3	2	3	3
PO 3	3	3	2	3	3	3	3	3	3	3
PO4	2	2	3	2	2	2	2	2	2	3
PO5	3	2	3	3	2	3	2	3	2	3
PO6	3	2	2	2	3	3	2	3	3	2
PO7	3	3	2	2	3	2	3	2	2	2
Total	20	18	18	18	19	18	18	17	17	19
Average	2.8	2.5	2.5	2.5	2.7	2.5	2.5	2.4	2.4	2.7

Course Outcomes

SEMESTER --I CORE COURSE-I PLANT DIVERSITY I ALGAE Course Code : BU231CC1

On the successful completion of the course, student will be able to:		
1.	relate to the structural organization, reproduction and significance of algae.	K2 &K5
2.	demonstrate knowledge in understanding the various life cycle patterns and the fundamental concepts in algal growth	K3 &K1
3.	explain the benefits of various algal technologies on the ecosystem.	K1
4.	compare and contrast the thallus organization and modes of reproduction in algae.	K4 & K5
5.	determine the emerging areas of Algal Biotechnology for identifying commercial potentials of algal products and their uses.	K5 & K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

SEMESTER --I CORE LAB COURSE I - PLANT DIVERSITY I: ALGAE Course Code : BU231CP1

On the successful completion of the course, student will be able to:		
1.	recall and identify algae using key identification characters.	K1
2.	demonstrate practical skills in preparation of fresh mount and identification of algal forms from algal mixture.	K3 &K2
3.	describe the internal structure of algae prescribed in the syllabus	K2
4.	decipher the algal diversity in fresh/marine water and their economic significance.	K4 &K6
5.	evaluate the various techniques used to culture algae for commercial purposes	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

SEMESTER – I
ELECTIVE COURSE I: ALLIED BOTANY -I
Course Code : BU231EC1

On the successful completion of the course, student will be able to:		
1.	increase the awareness and appreciation of human friendly algae and their economic importance.	K3
2.	develop an understanding of microbes and fungi and appreciate their adaptive strategies	K2
3.	develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms.	K2
4.	compare the structure and function of cells and explain the development of cells.	K4
5.	understand the core concepts and fundamentals of plant biotechnology and genetic engineering.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

SEMESTER – I
ELECTIVE LAB COURSE I: ALLIED BOTANY PRACTICAL
Course Code : BU231EP1
Course Outcomes

On the successful completion of the course, student will be able to:		
1.	to study the internal organization of algae and fungi.	K1
2.	develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms.	K2
3.	to study the classical taxonomy with reference to different parameters.	K4
4.	understand the fundamental concepts of plant anatomy and embryology	K2
5.	to study the effect of various physical factors on photosynthesis.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

SEMESTER --I
NON-MAJOR ELECTIVE NME I: NURSERY AND LANDSCAPING
Course Code : BU231NM

On the successful completion of the course, student will be able to:		
1.	recognize the basic principles and components of gardening.	K2
2.	explain about bio-aesthetic planning and conceptualize flower arrangement.	K1
3.	apply techniques for design various types of gardens according to the culture and art of bonsai.	K3
4.	compare and contrast different garden styles and landscaping patterns	K4
5.	establish and maintain special types of gardens for outdoor and indoor landscaping.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

SEMESTER –I
FOUNDATION COURSE: BASICS OF BOTANY

Course Code : BU231FC1

On the successful completion of the course, student will be able to:		
1.	increase the awareness and appreciation of human friendly algae and their economic importance	K1
2.	develop an understanding of microbes and fungi and appreciate their adaptive strategies	K1
3.	develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms	K2
4.	compare the structure and function of cells and explain the development of cells.	K4
5.	understand the core concepts and fundamentals of plant biotechnology and genetic engineering.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

SEMESTER --I
SPECIFIC VALUE ADDED COURSE – ART OF BONSAI
Course Code : BU231V01

On the successful completion of the course, student will be able to:		
1.	develop the ability to analyze various tree species and create balanced and aesthetically pleasing bonsai designs.	K5
2.	will acquire hands-on skills in techniques such as pruning, wiring, and repotting.	K1 & K4
3.	maintain the health and vitality of their bonsai trees.	K2
4.	appreciate the philosophy behind bonsai and how it reflects harmony with nature and the passage of time.	K5
5.	compose different styling techniques, including branch placement, trunk positioning, and foliage arrangement, enabling them to create captivating bonsai compositions.	K3 & K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6– Create

SEMESTER --II
CORE COURSE II: PLANT DIVERSITY II: FUNGI, BACTERIA, VIRUSES, PLANT PATHOLOGY AND LICHENS
Course Code : BU232CC1

On the successful completion of the course, student will be able to:		
1.	recognize the general characteristics of microbes, fungi and lichens and disease symptoms.	K1
2.	develop an understanding of microbes, fungi and lichens and appreciate their adaptive strategies based on structural organization.	K2 & K1
3.	identify the common plant diseases, according to geographical locations and devise control measures.	K3 & K4
4.	analyze the emerging trends in fungal biotechnology with special reference to agricultural and pharmaceutical applications.	K4
5.	determine the economic importance of microbes, fungi and lichens.	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

SEMESTER --II
CORE LAB COURSE II: PLANT DIVERSITY II: FUNGI, BACTERIA, VIRUSES,
PATHOLOGY AND LICHENS - PRACTICAL-II
Course Code : BU232CP1

On the successful completion of the course, student will be able to:		
1.	identify microbes, fungi and lichens using key identifying characters	K1 & K4
2.	develop practical skills for culturing and cultivation of fungi.	K3
3.	identify and select suitable control measures for the common plant diseases.	K1
4.	analyze the characteristics of microbes, fungi and plant pathogens	K2 & K4
5.	access the useful role of fungi in agriculture and pharmaceutical industry.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** – Analyze

SEMESTER – II
ELECTIVE COURSE II: ALLIED BOTANY – II
Course Code : BU232EC1

On the successful completion of the course, student will be able to:		
1	understand the fundamental concepts of plant anatomy and embryology.	K2
2	analyze and recognize the different organs of plants and secondary growth.	K4
3	understand water relation of plants with respect to various physiological processes.	K2
4	to know about the fundamental concepts of aerobic and anaerobic respiration.	K1
5	classify plant systematics and recognize the importance of herbarium and virtual herbarium.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze

SEMESTER – II
ELECTIVE LAB COURSE II: ALLIED BOTANY PRACTICALS

Course Code : BU232EP1

On the successful completion of the course, student will be able to:		
1.	study the internal organization of algae and fungi.	K2
2.	develop critical understanding on morphology, anatomy and reproduction of bryophytes, pteridophytes and gymnosperms.	K4
3.	study the classical taxonomy with reference to different parameters.	K1
4.	understand the fundamental concepts of plant anatomy and embryology	K2
5.	study the effect of various physical factors on photosynthesis.	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze

SEMESTER –II
NON-MAJOR ELECTIVE NME II: MUSHROOM CULTIVATION

Course Code : BU232NM1

On the successful completion of the course, student will be able to:		
1.	recall various types and categories of mushroom.	K1
2.	explain about various types of food technologies associated with mushroom industry.	K2
3.	apply techniques studied for cultivation of various types of mushrooms.	K3
4.	analyze and decipher the environmental factors and economic value associated with mushroom cultivation	K4
5.	develop new methods and strategies to contribute to mushroom production.	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze

SEMESTER -II
SKILL ENHANCEMENT COURSE SEC I:
BOTANICAL GARDEN AND LANDSCAPING

Course Code : BU232SE1

On the successful completion of the course, student will be able to:		
1.	to know about the fundamental concepts of gardening and landscaping	K1
2.	to provide an overview of various gardening styles and its scope in recreation and bio-aesthetic planning.	K2
3.	to illustrate the significance of garden adornments and propagation structures.	K3 & K6
4.	to create the design outdoor and indoor gardens and inculcate entrepreneurial skills for landscaping.	K4
5.	to inculcate entrepreneurial skills in students for creative landscaping design using cad software.	K5 & K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

SEMESTER I & II
Life Skill Training I: Catechism
Course Code: UG232LC1

Course Outcome	Upon completion of this course the students will be able to
CO-1	understand the aim and significance of value education
CO-2	develop individual skills and act confidently in the society
CO-3	learn how to live lovingly through family values
CO-4	enhance spiritual values through strong faith in God
CO-5	learn good behaviours through social values

SEMESTER I & II
Life Skill Training I: Moral
Course Code: UG232LM1

Course Outcome	Upon completion of this course the students will be able to
CO-1	understand the aim and significance of value education
CO-2	develop individual skills and act confidently in the society
CO-3	learn how to live lovingly through family values
CO-4	enhance spiritual values through strong faith in God
CO-5	learn good behaviours through social values