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)

DEPARTMENT OF BOTANY

Programme Educational Objectives (PEOs)

PEOs	Upon completion of M. Sc. Botany Programme, the graduates will be able to:	Mapping with Mission
PEO1	apply scientific and computational technology to solve social and ecological issues and pursue research.	M1, M2
PEO2	continue to learn and advance their career in industry both in private and public sectors.	M4 & M5
PEO3	develop leadership, teamwork, and professional abilities to become a more cultured and civilized person and to tackle the challenges in serving the country.	M2, M5 & M6

Programme Outcomes (POs)

POs	Upon completion of M.Sc. Botany Programme, the graduates will be able to:	Mapping with PEOs
PO1	apply their knowledge, analyze complex problems, think independently, formulate and perform quality research.	PEO1 & PEO2
PO2	carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication.	PEO1, PEO2 & PEO3
PO3	develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PEO2
PO4	develop innovative initiatives to sustain ecofriendly environment	PEO1, PEO2
PO5	through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way.	PEO2
PO6	employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources.	PEO1, PEO2 & PEO3
PO7	learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PEO3

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Program Specific Outcomes (PSO)	
On successful completion of the M.Sc. Botany programme, the students are expected to	
PSO1	familiarize with the fundamental, advanced and emerging concepts in Botany.
PSO2	understand the role of plants and their interactions with other organisms in variousecosystems.
PSO3	identify the potency of plant resources in contemporary research and visualize futurethrust areas in Botany.
PSO4	design scientific experiments independently and to generate useful information toaddress various issues in Botany.
PSO5	acquire basic knowledge on principles and applications of laboratory instruments andadequate skills to handle them.
PSO6	choose and apply appropriate tools, techniques, resources, etc. to perform variousexperiments in Botany.
PSO7	carryout scientific experiments independently or in collaboration with inter-disciplinary or multidisciplinary approaches.
PSO8	disseminate knowledge on conservation of biodiversity and protection of environment.
PSO9	awareness on the sustainable utilization of plant/microbial resources following thebioethical norms.
PSO10	demonstrate proficiency in communicating with various stakeholders like students,teachers, scientists and society.

Mapping of PO'S and PSO'S

POs	PSO1	PSO 2	PSO3	PSO4	PSO5	PSO6
PO 1	2	3	3	2	2	3
PO 2	3	3	3	3	3	3
PO 3	3	3	3	2	3	3
PO4	3	2	2	3	2	2
PO5	3	2	3	3	3	3
PO6	3	3	2	3	3	3
Total	17	16	16	16	16	17
Average	2.8	2.6	2.6	2.6	2.6	2.8

Course Outcomes

SEMESTER – I
CORE COURSE I : PLANT DIVERSITY – I: ALGAE, FUNGI, LICHENS AND BRYOPHYTES
Course Code : BP231CC1

On the successful completion of the course, student will be able to:		
1	relate to the structural organizations of algae, fungi, lichens and Bryophytes	**K1**
2	demonstrate both the theoretical and practical knowledge in understanding the diversity of basic life forms and their importance.	**K2**
3	explain life cycle patterns in algae, fungi, lichens and Bryophytes	**K3**
4	compare and contrast the mode of reproduction in diverse groups of basic plant forms.	**K4**
5	discuss and develop skills for effective conservation and utilization of lower plant forms.	**K5& K6**

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

SEMESTER I

CORE COURSE II: PLANT DIVERSITY – II: PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY

Course Code : BP231CC2

On the successful completion of the course, student will be able to:		
CO1	recall classification, recent trends in phylogenetic relationship, general characters of Pteridophytes and Gymnosperms.	**K1 & K2**
CO2	learn the morphological/anatomical organization, life history of major types of Pteridophytes and Gymnosperms.	**K2 & K4**
CO3	comprehend the economic importance of Pteridophytes, Gymnosperms and fossils.	**K3 & K5**
CO4	understanding the evolutionary relationship of Pteridophytes and Gymnosperms.	**K4 & K6**
CO5	awareness on fossil types, fossilization and fossil records of Pteridophytes and Gymnosperms.	**K5 & K6**

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

SEMESTER I

CORE LAB COURSE–I: LABORATORY COURSE COVERING CORE PAPERS- I AND II

Course Code : BP231CP1

On the successful completion of the course, student will be able to:		**KL**
CO1	recall and applying the basic keys to distinguish at species levelidentification of important algae and fungi through its structural organizations.	**K1&K4**
CO2	demonstrate practical skills in thallophytes, Pteridophytes and Gymnosperms.	**K2**
CO3	describe the structure of algae, fungi, lichens, Bryophytes, Pteridophytes and Gymnosperms. .	**K3**
CO4	determine the importance of structural diversity in the evolution of plant forms.	**K5**
CO5	formulate techniques to isolate and culture of alga and fungi as well as to understand the diversity of plant forms.	**K5&K6**

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

SEMESTER I

ELECTIVE COURSE I a)- MICROBIOLOGY, IMMUNOLOGY AND PLANT PATHOLOGY

Course Code : BP231EC1

On the successful completion of the course, student will be able to:		
CO1	recognize the general characteristics of microbes, plant defense and immune cells.	**K1**
CO2	explain about the stages in disease development and various defense mechanisms in plants and humans.	**K2**
CO3	elucidate concepts of microbial interactions with plant and humans	**K3**
CO4	analyze the importance of harmful and beneficial microbes and immune system	**K4**
CO5	determine and interpret the detection of pathogens and appreciate their adaptive strategies.	**K5 & K6**

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

SEMESTER I

ELECTIVE COURSE-I(b) CONSERVATION OF NATURAL RESOURCES AND POLICIES

Course Code : BP231EC2

COs	On completion of this course the student will be able to	
CO1	understand the concept of different natural resources and their utilization.	K1
CO2	critically analyze the sustainable utilization land, water, forest and energy resources	K2 & K6
CO3	evaluate the management strategies of different natural Resources	K3
CO4	reflect upon the different national and international efforts in resource management and their conservation.	K4
CO5	state the various environmental policy passed to conserve the natural resources.	K5

SEMESTER I

ELECTIVE COURSE-I c) MUSHROOM CULTIVATION

Course Code : BP231EC3

Course Outcomes:	On completion of this course the student will be able to	KL
CO 1	knowledge on identification of edible and toxic mushrooms belonging to ascomycota and basidiomycota.	K1, K3
CO2	outline the nutraceutical properties of edible mushrooms.	K2, K4
CO3	knowledge on cultivation techniques of edible and medicinal mushrooms.	K3, K6
CO4	understand the harvest and post-harvest techniques of mushroom crops.	K4
CO5	knowledge on the production and marketing strategies for mushrooms.	K5

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

SEMESTER I

ELECTIVE COURSE II: a) ETHNOBOTANY, NATUROPATHY AND TRADITIONAL HEALTH CARE

Course Code : BP231EC4

COs	**On the successful completion of the course, student will be able to:**	**KL**
CO1	recall or remember concept of ethnobotany.	**K1**
CO 2	understand the life style and traditional practices of plants by Indian tribals.	**K2&K6**
CO3	highlight the role of Non-Timber Forest products for livelihood of tribal people of India	**K 3**
CO 4	assess the methods to transform ethnobotanical knowledge into value added products	**K4**
CO 5	build idea to make digitization of ethnobotanical knowledge.	**K5**

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

SEMESTER I

ELECTIVE COURSE-II b)ALGAL TECHNOLOGY

Course Code : BP231EC5

CO	**On completion of this course, the students will be able to:**	**KL**
CO1	understand the applied facet of botany and acquire a complete knowledge about the cultivation methods in algae.	K1& K3
CO2	realization of the commercial potential of algal products.	K5
CO3	analyze emerging areas of algal biotechnology for identifying therapeutic importance of algal products and their uses.	K2 & K4
CO4	gain more information about algae genetics.	K4
CO5	translate various algal technologies for the benefit of the ecosystem.	K3 & K6

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

SEMESTER I
ELECTIVE COURSE -II c)HERBAL TECHNOLOGY
Course Code : BP231EC6

COs	On completion of this course, the students will be able to:	KL
CO1	recollect the importance of herbal technology.	K1
CO2	understand the classification of crude drugs from various botanical sources.	K2
CO3	analyze on the application of secondary metabolites in modern medicine.	K3
CO4	create new drug formulations using therapeutically valuable phytochemical compounds for the healthy life of society.	K4
CO5	comprehend the current trade status and role of medicinal plants in socio economic growth.	K5 & K6

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

SEMESTER I

SPECIFIC VALUE ADDED COURSE

NATURAL RESOURCES AND THEIR CONSERVATION

Course Code : BP231V01

Course Outcomes	On completion of this course the student will be able to	
CO1	explain the natural resources	K1
CO2	recognize the critical role natural resources play in supporting life and ecosystems.	K2
CO3	distinguish between various natural resource categories, including energy resources, and biological resources	K3
CO4	analyze the consequences of the over-exploitation of non renewable resources.	K4
CO5	evaluate the impacts of climate change on natural resources and ecosystems	**K5**

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

SEMESTER – I

LIFE SKILL TRAINING – I ETHICS

Course Code : PG23LST1

Course Outcomes	On completion of this course the student will be able to	
CO1	understand deeper insight of the meaning of their existence.	K1
CO2	recognize the philosophy of life and individual qualities	K2
CO3	acquire the skills required for a successful personal and professional life.	K3
CO4	develop as socially responsible citizens.	K4
CO5	create a peaceful, communal community and embrace unity.	**K3**

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