

ST PETER'S COLLEGE KOLENCHERY, ERNAKULAM
DEPARTMENT OF BOTANY

- PROGRAMME - BSc BOTANY
- PROGRAMME CODE - BO
- **B.Sc. BOTANY** -MAHATMA GANDHI UNIVERSITY KOTTAYAM KERALA

Programme Outcome	
PO1	Critical thinking
PO2	Environment and Sustainability
PO3	Self-directed and Life-long learning
PO4	Computational thinking
PO5	Problem solving

Programme Specific Outcome

PSO 1	Understand the nature and fundamental concepts in methodology of science, plant systematics, ecology, anatomy, cell biology, physiology, molecular biology, genetics, plant breeding, developmental biology, evolution, biotechnology and bioinformatics
PSO 2	Understand the diversity, relationship among lower and higher groups of plants and their importance.
PSO 3	Understand applications of biology in horticulture, plant breeding, biotechnology, tissue culture, genetic engineering, bio informatics, biophysics and agribusiness
PSO 4	Perform laboratory procedures as per standard protocols in the areas of physiology, anatomy, taxonomy, mycology, cell and molecular biology, biotechnology, bioinformatics, biophysics, biochemistry, ecology and plant pathology

**Name of Course: METHODOLOGY OF SCIENCE AND AN INTRODUCTION
TO BOTANY**

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand different methodologies and experimental designs in Science	PO1 PSO1	U	CK	10	6

CO2	Understand the origin, evolution, diversity and classification of living world	PO1 PSO1	U	CK	15	5
CO3	Develop basic practical skills in the field of Botany	PO2 PSO4	AP	PK	11	25
Total Number of Hours					36	36

Name of Course: Cryptogams, Gymnosperms And Plant Pathology

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand botany as an integral part of human life and development.	PO1 PSO2	U	CK	6	6
CO2	Understand diversity of algae, fungi, bryophytes, pteridophytes and gymnosperms.	PO1 PSO2	U	CK	10	10
CO3	Understand reproduction, lifecycle and economic importance of cryptogams and gymnosperms.	PO1 PSO2	U	CK	10	10
CO4	Understand disease development, symptoms and control of plant diseases.	PO1 PSO2	U	CK	10	10
Total Number of Hours					36	36

Name of Course: Plant Physiology

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
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CO1	Understand basic principles related to various physiological functions in plant life.	PO1 PSO1	U	CK	5	2
CO2	Understand water relations and mineral nutrition in plants.	P01 PSO1	U	CK	10	2
CO3	Understand mechanism of synthesis and translocation of food in plants.	PO1 PSO1	U	CK	12	2
CO4	Understand germination, dormancy, growth and development in plants.	PO1 PSO1	U	CK	7	2
CO5	Familiarize with basic skills and techniques related to plant physiology.	PO2 PSO4	AP	PK	2	28
Total Number of Hours					36	36

MICROBIOLOGY, MYCOLOGY AND PLANT PATHOLOGY

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand the world of microbes, fungi and lichen	PO1 PSO2	U	CK	10	12
CO2	Understand ecology, reproduction, economic importance of microbes, fungi and lichens	PO1 PSO1	U	CK	16	12
CO3	Understand disease development, symptoms and control measures of plant diseases	PO1 PSO4	U	PK	10	12
Total Number of Hours					36	36

Name of Course: ANGIOSPERM TAXONOMY and ECONOMIC BOTANY

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand Morphological features of Angiosperms.	PO1 PSO2	U	CK	10	6
CO2	Understand Plant Classification systems.	PO1 PSO2	U	CK	8	0
CO3	Understand techniques involved in Herbarium Preparation.	PO1 PSO4	U	PK	4	0
CO4	Recognize members of selected Angiosperm families by identifying their diagnostic features.	PO1 PSO4	R	PK	18	20
CO5	Evaluate medicinal importance of selected Angiosperms.	PO1 PSO2	E	CK	8	4
CO6	Evaluate Economic importance of selected plants special reference to family, morphology and useful parts.	PO1 PSO4	E	PK	6	6
Total Number of Hours					54	36

Name of the Course : Phycology & Bryology

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Generalize diversity in habit ,habitat & organization of lower plant groups	PO1 PO7 PSO2	U	PK	8	7
CO2	Understand various classification systems in Phycology & Bryology	PO1 PSO1	U	CK	3	4

CO3	Compare & contrast external morphology ,anatomy & reproduction of Algae & Bryophytes	PO1 PSO2	AN	PK	30	18
CO4	Relationship between Algae & Bryophytes in evolutionary aspects	PO9	AN	CK	3	3
CO5	Critical study on various ecological & economic importance of Algae & Bryophytes	PO7 PSO3	AE	PK	10	4
	Total Number of Hours				54	36

Name of Course: Pteridology, Gymnosperms and Paleobotany (BO4CRT04)

Mention Credits given: [L:T:P]

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand the diversity in habits, habitats and organization of Pteridophytes and gymnosperms	PO1 PSO2	U	CK	15	17
CO2	Understand the modern classification of Pteridophytes and gymnosperms	PO1 PSO1	U	CK	10	0
CO3	Understand common types of Pteridophytes and gymnosperms and their economic importance	PO1 PSO2	U	CK	15	17
CO4	Understand the mechanism of fossil formation and types of fossils with examples	PO1 PSO1	U	CK	10	2
CO5	Understanding contributions of Indian paleontologists	PO1 PSO1	U	CK	4	0

	Total Number of Hours	54	36
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Name of Course: ANATOMY and APPLIED BOTANY

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand different plant tissue types	PO1 PSO1	U	CK	9	2
CO2	Understand anatomical features of Monocots and Dicots	PO1 PSO1	U	CK	12	12
CO3	Understand Ecological adaptations of Plants	PO1 PSO1	U	CK	6	6
CO4	Understand normal and anomalous secondary thickening in Plants	PO1 PSO1	U	CK	8	10
CO5	Understand the basic techniques in Plant breeding	PO1 PSO1	U	CK	5	0
CO6	Carry out artificial propagation methods in plants- Layering, Budding, Grafting	PO1 PSO3	AP	PK	6	6
CO7	Understand basics of tissue culture techniques	PO1 PSO3	U	CK	8	0
CO8						
	Total Number of Hours				54	36

Name of Course: Anatomy, reproductive botany & Micro technique

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understanding the anatomy and reproduction of angiosperms	PO1 PSO1	U	CK	11	7
CO2	Understand the structure and functions of cell, cell inclusions & tissues	PO1 PSO1	U	CK	10	4
CO3	Analyzing structural adaptation in plants growing in different environment	PO9 PSO4	E	PK	6	7
CO4	Understand the morphology & development of reproductive parts & reproduction in angiosperms	PO1 PSO1	U	CK	18	9
CO5	Understand the techniques of preservation of plant specimens, sectioning & mounting	PO1 PSO4	U	PK	9	9
Total Number of Hours					54	36

Name of Course: Research Methodology, Biophysics and Biostatistics

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand the methodologies in research	PO1 PSO1	U	CK	5	3
CO2	Apply the methodology in writing research report	PO2 PSO3	AP	PK	5	5

CO3	Understand the techniques and tools used in research	PO1 PSO4	U	PK	10	5
CO4	Understand the computer skills required in research	PO2 PSO4	U	CK	4	10
CO5	Understand the principles and applications of biophysical instruments	PO2 PSO3	AP	FK	15	15
CO6	Apply the numerical skills in research data preparation	PO2 PSO4	AP	PK	15	7
Total Number of Hours					544	45

Mention Name of Course: Plant Physiology and Biochemistry

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand basic principles related to various physiological functions in plant life.	PO1 PSO1	U	CK	15	5
CO2	Understand the recent trends in the field of plant physiology	P02 PSO1	U	CK	5	2
CO3	Understand structure, functions and importance of biomolecules.	PO1 PSO1	U	CK	15	10
CO4	Understand germination, dormancy, growth, development and role of hormones in plants.	PO9 PSO1	U	FK	4	3
CO5	Familiarize with basic skills and techniques related to plant physiology and biochemistry.	PO2 PSO4	AP	PK	10	15

CO6	Apply physiological aspects in other fields like agriculture, nursery management and forestry.	PO9 PSO3	AP	PK	5	10
	Total Number of Hours				54	45

Name of Course: ENVIRONMENT SCIENCE and HUMAN RIGHTS

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Aware students with significance of Environmental Science and Human rights	PO6 PSO1	U	CK	4	0
CO2	Understand structure and function of Ecosystems and interactions of populations in Ecosystem	PO9 PSO1	U	CK	10	8
CO3	Generalize Pollution types in environment, their impact and control measures	PO6 PO9 PSO4	U	PK	9	15
CO4	Focus and distinguish Environmental Laws and Environment protection efforts	PO7 PO9 PSO1	AN	PK	10	2
CO5	Understand Biodiversity and their Conservation	PO6 PO7 PO9 PSO2	U	CK	9	11
CO6	Describe Human Right Laws and Provisions in Indian Constitution	PO6 PO7 PSO1	R	CK	12	0
	Total Number of Hours				54	36

Name of Course: Agribased Microenterprises

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand agribased business opportunities.	PO1 PSO3	U	CK	4	
CO2	Apply the knowledge of agriculture to develop agribased entrepreneurship.	PO2 PSO3	AP	CK	5	
CO3	Understand the basic concepts of sustainable development in agribusiness.	PO7 PSO4	U	FK	10	
CO4	Understand and apply the principles of organic farming.	PO2 PSO1	U	PK	15	
CO5	Understand the opportunities and scope of ecotourism.	PO7 PSO3	U	FK	5	
CO6	Apply different processing techniques in agricultural products	PO1 PSO3	AP	PK	15	
	Total Number of Hours				54	

Mention Name of Course: Genetics, Plant Breeding and Horticulture

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Explain principles of Heredity & pattern of Inheritance	PO1 PSO1	U	CK	14	6
CO2	Understand the inheritance pattern of nuclear & Extra nuclear genes	PO1 PSO1	U	CK	13	5
CO3	Describe the procedure of crop improvement methods	PO6 PO9 PSO3	U	PK	10	12
CO4	Explain horticultural practices and its applications in human welfare	PO6 PO9 PSO3	AP	PK	10	13
CO5	Develop skills in gardening techniques among students	PO6 PO9 PSO3	AP	PK	7	9
	Total Number of Hours				54	45

CELL AND MOLECULAR BIOLOGY

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand the ultra structure & functioning of cell in submicroscopic & cellular level	PO1 PSO1	U	CK	9	15
CO2	Understand the concept of continuity & complexity of life activities	PO1 PSO2	U	CK	15	11
CO3	Understand DNA as basics of heredity & variation	PO1 PSO1	U	CK	9	1
CO4	Understand cytological aspects of growth & development	PO1 PSO1	U	CK	7	3
CO5	Solve basic molecular biology problems	PO2 PSO1	AP	PK	5	15
CO6	Understand major theories of evolution	PO1 PSO1	U	CK	4	0
CO7	Understand the concept of isolation, speciation, mutation, hybridization and their interrelation with evolution	PO1 PSO1	U	CK	5	0
	Total Number of Hours				54	45

Name of Course: ANGIOSPERM MORPHOLOGY, TAXONOMY AND ECONOMIC BOTANY**Mention Credits:**

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand the aim , objectives, significance and applications of plant taxonomy	PO1 PSO2	U	CK	6	0
CO2	Understand plant morphological terminologies and identify morphological peculiarities.	P02 PSO2	U	pK	10	5
CO3	Understand different systems of angiosperm classification and nomenclature.	PO1 PSO2	U	CK	15	0
CO4	Understand angiosperm diversity and identify their diagnostic features and economic importance.	PO1 PO9 PSO2	U	PK	30	15
CO5	Evaluate economic importance of selected angiosperms.	PO2 PSO2	E	PK	5	5
CO6	Acquaint with the basic techniques of herbarium preparation, systematic identification of angiosperms.	PO 1 PO2 PSO2	AP	PK	6	20
	Total Number of Hours				72	45

Mention Name of Course: BIOTECHNOLOGY AND BIOINFORMATICS

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand the principles of biotechnology, developments in biotechnology and applications of biotechnology	PO9 PSO1	U	CK	20	6
CO2	Equip the students to carryout plant tissue culture	PO2 PSO4	AP	PK	16	20
CO3	Understand the different biological data base	PO7 PSO1	U	CK	9	8
CO4	Equip the students to access and analyze the various data bases	PO2 PSO3	AN	PK	9	11
	Total Number of Hours				54	45

Mention Name of Course: Agribusiness

Mention Credits:

CO	CO Statement	PO/ PSO	CL	KC	Class Hrs	Lab Hrs
CO1	Understand agribased business opportunities.	PO1 PSO3	U	CK	4	

CO2	Apply the knowledge of agriculture to develop agribased entrepreneurship.	PO2 PSO3	AP	CK	5	
CO3	Understand the basic concepts of sustainable development in agribusiness.	PO7 PSO4	U	FK	10	
CO4	Understand and apply the principles of organic farming.	PO2 PSO1	U	PK	15	
CO5	Understand the opportunities and scope of ecotourism.	PO7 PSO3	U	FK	5	
CO6	Apply different processing techniques in agricultural products	PO1 PSO3	AP	PK	15	
	Total Number of Hours				54	