

DEPARTMENT OF BOTANY
NALLAMUTHU GOUNDER MAHALINGAM COLLEGE
(AUTONOMOUS)
POLLACHI-642001

SYLLABUS
CBCS & OUTCOME BASED EDUCATION
For the students admitted during 2022- 2025

B.Sc., BOTANY
&
ALLIED ZOOLOGY

REVISED ON THE BOARD OF STUDIES
HELD ON JUNE 2022

NGM COLLEGE

Vision

Our dream is to make the college an institution of excellence at the national level by imparting quality education of global standards to make students academically superior, socially committed, ethically strong, spiritually evolved and culturally rich citizens to contribute to the holistic development of the self and society

Mission

Training students to become role models in academic arena by strengthening infrastructure, upgrading curriculum, developing faculty, augmenting extension services and imparting quality education through an enlightened management and committed faculty who ensure knowledge transfer, instil research aptitude and infuse ethical and cultural values to transform students into disciplined citizens in order to improve quality of life.

DEPARTMENT OF BOTANY

Vision

The Department of Botany aims to achieve high quality education and research relevant to local, regional and national needs and through knowledge sharing with leading researchers and educators across the country. We foster an exciting and intellectually stimulating atmosphere for all in a co-operative and positive environment.

Mission

To bring confidence in the lifestyle of any Botany student whose stay will ensure proficiency and competency in the subjects thought. We inculcate the habit of excellence in all the learning activities so as to ensure employability.

Program Educational Objectives:

PEO1	<i>Knowledge transfer and Social responsibility</i> To groom the student admitted in the undergraduate Botany Program into a socially responsible citizen.
PEO2	<i>Life long learning and Academic excellence</i> To impart quality education to meet the demands of higher education and research in Botany
PEO3	<i>Individual and Team Communication</i> To instill confidence by sharpening their leadership skills and soft skills among the graduate students
PEO4	<i>Employability and Entrepreneurship</i> To develop a competitive edge among the students by encouraging to take up various courses with employability skills
PEO5	<i>Professional ethics and Social responsibility</i> To inculcate the professional ethics in the students so as to produce socially responsible professionals in the field of Botany

PROGRAMME SPECIFIC OUTCOMES

On successful completion of the B.Sc. Botany Degree Programme, the graduates are expected to achieve the following outcomes within five to seven years.

PSO –01	<i>Knowledge transformation</i> To transform the student into a confident individual with academic knowledge blended with leadership skills
PSO –02	<i>Life long learning</i> To instill confidence in the knowledge obtained in the avenues of Plant Biology in pursuing higher education or taking up appropriate jobs.

PROGRAMME OUTCOMES

After learning B. Sc. Botany Programme, our students are enabled to

PO1	<i>Lifelong learning</i> To appreciate, understand and conserve the biodiversity of cellular forms, lower plants to higher plants
PO2	<i>Disciplinary Knowledge</i> To enhance the theoretical knowledge and basic concepts on Bio molecules, Microbes, Plant Structure, Function, Evolution and Environment
PO3	<i>Scientific temper</i> To develop practical knowledge in the preparation of microsections, herbarium, quantifying biomolecules and other basic techniques.
PO4	<i>Entrepreneurship & Enrichment of Knowledge</i> To attain entrepreneurial skills in the fields of Horticultural techniques, Landscape designing, Herbal cosmetics, Biofertilizers, Mushroom cultivation, Organic farming

PO5	<i>Interdisciplinary Approach</i> To update the students with modern trends in Plant biology and introduce the interdisciplinary approach
PO6	<i>Individual and Team Communication</i> To inculcate the habit of reading dailies, research articles and publications so as to groom the students in communicating scientific reports and dissertations.
PO7	<i>Professional Ethics and Mental wellness</i> To educate the students with professional ethics so as to enable them into a complete professional.
PO8	<i>Employability and Social responsibility</i> To encourage the students to identify the various career options (Research & Higher studies/Competitive Exams/Consultants/Teaching/Forest Department officials/Entrepreneurs/ Field Botanists/ Herbarium Technicians etc.)

Program Learning Outcome

Mapping

PO / PSO PEO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
PEO1	H	H	H	H	H	H	H	H	H	H
PEO2	H	H	H	H	H	H	H	H	H	H
PEO3	H	H	H	H	H	H	H	H	H	H
PEO4	H	H	H	H	H	H	H	H	H	H
PEO5	H	H	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

SYLLABUS

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY101	Course Title	2022-2025
		PLANT DIVERSITY I(PHYCOLOGY, MYCOLOGY AND BRYOLOGY)	Semester 1
Hrs/Week:5			Credits 4

Course Objective

- To understand the morphology, structure, lifecycle of the selected forms of Algae, Fungi, Lichens and Bryophyte.
- To appreciate the diversity of lower plants
- To learn the evolutionary trends in the lower plants

Course Learning Outcome

After successful completion of this course, the students should be able to

K1	CO1	To differentiate lower plants like Algae, Fungi, Lichens and Bryophytes
K2	CO2	To understand the morphology and lifecycle of Algae, Fungi, Lichens, Bryophyte
K3	CO3	To apply different classification systems to appreciate the diversity of lower plants
K4	CO4	To identify the economically important Algae, Fungi, Lichens and Bryophytes
K5	CO5	To appreciate the progressive evolution observed in the lower plant group

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	M	M	M	M	H	H	H	H	H
CO2	H	H	M	M	M	H	H	H	H	H
CO3	H	H	M	M	M	H	H	H	H	H
CO4	H	H	H	L	-	H	H	H	H	H
CO5	H	H	H	M	-	H	H	H	H	H

H-High; M-Medium; L-Low

Coursecode 22UZY1A1	CourseTitle	2022-2025
	ANCILLARY BOTANY PAPER - I (PLANT DIVERSITY,ANATOMY,EMBRYOLOGYAND PLANT PATHOLOGY)	Semester1
Hrs/Week6		Credits3

CourseObjective

- To appreciate the diversity in lower plants
- To understand the anatomy of angiosperms
- To each important plant diseases,causal organisms and control.

CourseOutcome

K1	CO1	To recollect the existing diversity among lower plants
K2	CO2	To understand the internal structure of angiosperms
K3	CO3	To know the embryo development andfertilization inhigher plants
K4	CO4	To analyze the economically important plant diseases and their control measures
K5	CO5	To obtain the skill of technically draw the plant tissues

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	M	L	H	H	H	H	H
CO2	H	H	H	M	L	H	H	H	H	H
CO3	H	H	H	M	M	H	H	H	H	H
CO4	H	H	H	-	-	H	H	H	H	H
CO5	H	H	H	-	-	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22UBY202		Course Title PLANT DIVERSITY II (PTERIDOPHYTES, GYMNOSPERMS AND PALAEOBOTANY)	2022-2025 Semester 2
Hrs/Week 5			Credits 4

Course Objective

- To study the morphology, life cycle and economic value of selected Pteridophytes, Gymnosperms
- To learn the concept of Evolution and Paleobotany
- To revisit the geological time scale with respect to the plant group

Course Outcome

K1	CO1	To appreciate the morphology and lifecycle of Pteridophytes and Gymnosperms
K2	CO2	To understand the concepts of evolution, Palaeobotany and evolution of land plants
K3	CO3	To identify the economically important Pteridophytes and Gymnosperms
K4	CO4	To study the fossil plants and their fructifications
K5	CO5	To compare the evolutionary trends that exist in anatomical and reproductive structures in Pteridophytes and Gymnosperms

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	L	-	H	H	H	H	H
CO2	H	H	M	L	-	H	H	H	H	H
CO3	H	H	H	-	-	H	H	H	H	H
CO4	H	H	M	-	L	H	H	H	H	H
CO5	H	H	M	-	L	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	ProgrammeTitle	Bachelorof Science (BOTANY)
Coursecode	22UBY203	Course Title	2022-2025
		MAJORPRACTICAL–I(PLANT DIVERSITY I & II)	Semester2
Hrs/Week2			Credits 4

CourseObjective

- To gethands onknowledgeon microbialculturetechniques
- Tounderstand theplant diversity, thallusorganization ofselectedforms
- Tolearn about thefossilizedplant forms and Plant evolution.

CourseOutcome

K1	CO1	To revise the morphology and reproductive structures in Algae, Fungi,Lichens, and Bryophyte
K2	CO2	To understand the internal structures and spore bearing parts of selected lower plant forms
K3	CO3	To prepare microsections and to identify fossil specimen and slides
K4	CO4	To compare the lifecycle of Algae, Fungi, Lichens, Bryophytes, Pteridophytes and Gymnosperms
K5	CO5	To professionally draw plant sketches

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	M	-	H	H	H	H	H
CO2	H	H	H	M	M	H	H	H	H	H
CO3	H	M	H	M	M	H	H	H	H	H
CO4	H	H	H	H	H	H	H	H	H	H
CO5	H	H	H	-	-	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (Zoology)
Coursecode 22UZY2A2	Course Title		2022-2025
	ANCILLARY BOTANY PAPER - II (TAXONOMY OF ANGIOSPERMS, PHYSIOLOGY, HORTICULTURE, PHARMACOGNOSY & PLANT BIOTECHNOLOGY)		Semester 2
Hrs/Week	6		Credits
			3

Course Objective

- To know the diversity, utility and physiology flowering plants
- To learn the available horticultural techniques to raise new plantlets
- To understand the basics of plant biotechnology

Course Outcome

K1	CO1	To appreciate the morphology and lifecycle of selected Angiosperms
K2	CO2	To understand the concepts of Plant functions
K3	CO3	To identify flowering plants and medicinal plants in their habit.
K4	CO4	To explain different cutting, layering, grafting, budding methods to propagate Different plant plants
K5	CO5	To evaluate and learn the basic concept to Plant Biotechnology

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	M	H	H	-	H	H	H	H	H
CO2	H	H	H	M	-	H	H	H	H	H
CO3	H	H	H	H	M	H	H	H	H	H
CO4	H	M	M	H	M	H	H	H	H	H
CO5	H	H	M	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (Zoology)
Coursecode	22UZY2A3	Course Title	2022-2025
		ANCILLARY BOTANY PRACTICAL	Semester 2
Hrs/Week			Credits 4

Course Objective

- To know the diversity, morphology, anatomy and reproductive structures of selected lower plants and higher plants.
- To impart the basic plant breeding, horticultural techniques and plant diseases.
- To introduce important medicinal plants and principles of plant biotechnology

Course Outcome

K1	CO1	To identify some selected lower plants and higher plants in their habit
K2	CO2	To understand the internal structure, embryology and physiology of angiosperms
K3	CO3	To illustrate the economically important plant diseases and their control measures
K4	CO4	To prepare microsections and obtain the skill of drawing the plant tissues technically
K5	CO5	To propagate plants using simple horticultural techniques and to introduce plant tissue culture techniques

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H
CO2	H	H	H	M	H	H	H	H	H	H
CO3	H	H	M	-	M	H	H	H	H	H
CO4	H	H	H	-	L	H	H	H	H	H
CO5	H	H	H	-	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY304	Course Title	2022-2025
		CYTOLOGY, ANATOMY AND EMBRYOLOGY	Semester 3
Hrs/Week	5		Credits
			4

Course Objective

- To acquire knowledge about the entire Plant cell, growth and development.
- To know various anatomical features of flowering plants
- To comprehend the important events in embryo development and fertilization.

Course Outcome

K1	CO1	To introduce and enumerate the theories on plant cell, tissues and cell division
K2	CO2	To summarize the anatomy of various plant parts
K3	CO3	To demonstrate the internal structure and embryology of angiosperms
K4	CO4	To compare the growth and developmental pattern of dicots and monocots
K5	CO5	To evaluate the anatomical adaptations of xerophytes and hydrophytes

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	-	-	H	H	H	H	H
CO2	H	H	H	-	-	H	H	H	H	H
CO3	H	H	H	H	-	H	H	H	H	H
CO4	H	H	H	-	-	H	H	H	H	H
CO5	H	H	H	-	-	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22UBY3N11	Course Title SKILLBASED ELECTIVE (NON MAJOR): LANDSCAPE DESIGNING		2022-2025 Semester 3
Hrs/Week 1			Credits 2

Course Objective

- To introduce the scope and essential elements of landscape.
- To learn various garden structures.
- To bring creativity in techniques like Bonsai, Rockery and Flower arrangement

Course Outcome

K1	CO1	To know the Gardening types and features
K2	CO2	To understand the Landscape designing principles
K3	CO3	To analyze the uniqueness of indoor garden
K4	CO4	To explain the methods in flower arrangements, kitchen garden and terrarium
K5	CO5	To develop entrepreneurial skill in nursery management and landscape designing

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	M	M	H	M	H	H	H	H	H
CO2	H	M	M	H	L	H	H	H	H	H
CO3	H	H	M	H	M	H	H	H	H	H
CO4	H	H	H	H	H	H	H	H	H	H
CO5	H	M	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22UBY3N12		Course Title SKILLBASED ELECTIVE (NON MAJOR): HERBAL COSMETICS	2022-2025 Semester 3
Hr/Week 1			Credits 2

Course Objective

- To understand the role of herbs as a source of natural and safe cosmetics.
- To learn the principles of Herbal cosmetics
- To explore the herbal remedies for personal care products

Course Outcome

K1	CO1	To recollect the medicinal herbs and the need for herbal cosmetics
K2	CO2	To comprehend the principles behind herbal cosmetics
K3	CO3	To illustrate the various personal care remedies using herbs
K4	CO4	To expose the students to prepare home recipes with available herbs
K5	CO5	To enable the students to become entrepreneur in the field of herbal cosmetics

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	M	H	H	H	H	H	H	H	H
CO2	M	H	H	H	H	H	H	H	H	H
CO3	M	M	M	H	H	H	H	H	H	H
CO4	M	M	M	H	H	H	H	H	H	H
CO5	M	M	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22UBY405		Course Title BIOCHEMISTRY, BIOPHYSICS & BIOINSTRUMENTATION	2022-2025 Semester 4
Hrs/Week 5			Credits 4

Course Objective

- To know the biomolecules of life
- To understand the biophysical laws governing universe
- To analyze the biomolecules using simple separation techniques

Course Outcome

K1	CO1	To revisit and understand the structure and functions of biomolecules	
K2	CO2	To prepare and quantify solutions, biomolecules	
K3	CO3	To illustrate the central dogma of molecular biology	
K4	CO4	To explain the biophysical forces and laws of thermodynamics	
K5	CO5	To know-how the quantification of biomolecules using selected optical techniques	

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	L	M	H	H	H	H	H
CO2	H	H	M	L	H	H	H	H	H	H
CO3	H	H	M	M	H	H	H	H	H	H
CO4	H	H	H	M	H	H	H	H	H	H
CO5	H	H	H	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY406	Course Title	2022-2025
		MAJOR PRACTICAL-II (CELL BIOLOGY, ANATOMY & EMBRYOLOGY & BIOCHEMISTRY, BIOPHYSICS & BIOINSTRUMENTATION)	Semester 4
Hrs/Week	2		Credits 4

Course Objective

- To learn various anatomical features of higher plants
- To know the structure and development of anther, ovary, embryo
- To impart training in basic separation techniques

Course Outcome

K1	CO1	To collect the internal structure and functions of angiospermic plants
K2	CO2	To understand the working principle of selected instruments
K3	CO3	To demonstrate the developmental details of plant embryo
K4	CO4	To prepare permanent microsections
K5	CO5	To obtain working knowledge in biochemical techniques

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	M	M	H	H	H	H	H
CO2	L	H	H	L	H	H	H	H	H	H
CO3	H	H	H	L	L	H	H	H	H	H
CO4	M	H	H	M	L	H	H	H	H	H
CO5	L	L	H	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22UBY4N22	Course Title SKILL BASED ELECTIVE(NONMAJOR)– REMOTE SENSING AND NATURAL RESOURCE MANAGEMENT		2022-2025 Semester 4
Hr/Week 1			Credits 4

Course Objective

- To study the basic principles of remote sensing techniques
- To understand the role of GIS,GPS in managing Natural resources
- To comprehend the role of national and international agencies

Course Outcome

K1	CO1	To list down the natural resources and biosphere reserves
K2	CO2	To understand the concept of Remote sensing
K3	CO3	To apply remote sensing techniques in Resource management
K4	CO4	To update the recent trends in remote sensing techniques
K5	CO5	To expose students in getting to know the employability in the field of Remote sensing

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	M	M	M	L	H	H	H	H	H	H
CO2	M	M	M	M	H	H	H	H	H	H
CO3	M	H	M	L	H	H	H	H	H	H
CO4	L	H	M	M	H	H	H	H	H	H
CO5	L	H	M	M	H	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22UBY4N22		Course Title SKILLBASEDELECTIVE (NONMAJOR)-BIOINFORMATICS	2022-2025 Semester 4
Hr/Week 1			Credits 2

Course Objective

- To introduce classical bioinformatics theory to students
- To focus computer science techniques used in biological studies
- To explore the existing biological databases and searching tools

Course Outcome

K1	CO1	To introduce Bioinformatics and Biological databases
K2	CO2	To comprehend the origin of life and genetic code
K3	CO3	To know-how the gene finding, protein prediction and genetic algorithm
K4	CO4	To analyze the phylogeny between species using pattern recognition and homology
K5	CO5	To encourage the students to carry out research in the field of Bioinformatics

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	L	L	H	H	H	H	H	H
CO2	H	H	H	L	H	H	H	H	H	H
CO3	M	H	H	M	H	H	H	H	H	H
CO4	L	H	M	M	H	H	H	H	H	H
CO5	L	M	M	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY507	Course Title	2022-2025
		TAXONOMY OF ANGIOSPERMS & ECONOMIC BOTANY	Semester 5
Hrs/Week	5		Credits
			4

Course Objective

- To learn nomenclature systems and to identify the plants
- To introduce modern trends in taxonomy
- To know the economic uses of plants

Course Outcome

K1	CO1	To introduce and list down the technical terms used in taxonomy
K2	CO2	To understand the principle and classification of angiosperms
K3	CO3	To illustrate and identify the flowering plants of the campus
K4	CO4	To explain the herbarium preparation techniques
K5	CO5	To update the Botanical nomenclature, norms and digital taxonomy

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	M	M	H	H	H	H	H
CO2	H	H	H	M	M	H	H	H	H	H
CO3	H	M	H	M	L	H	H	H	H	H
CO4	H	M	H	H	L	H	H	H	H	H
CO5	H	L	M	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY508	Course Title	2022-2025
		GENETICS & EVOLUTION	Semester 5
Hrs/Week	5		Credits 4

Course Objective

- To learn the principles and theories of inheritance
- To know the concepts of classical and modern genetics
- To update the concepts and theories on Prokaryotic and Eukaryotic expression

Course Outcome

K1	CO1	To revise the Mendelian Genetics
K2	CO2	To understand the concept of gene and molecular basis of heredity
K3	CO3	To learn the significance of Meiosis
K4	CO4	To analyze the causes of mutation and DNA repair mechanisms
K5	CO5	To summarize the theories of evolution and origin of life

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	L	H	M	M	M	H	H	H	H	H
CO2	M	H	M	M	M	H	H	H	H	H
CO3	M	H	L	M	M	H	H	H	H	H
CO4	M	H	L	-	H	H	H	H	H	H
CO5	H	H	L	-	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Coursecode	22UBY509	Course Title	2022-2025
		BIO INFORMATICS	Semester 5
Hrs/Week5			Credits 5

Course Objective

- To introduce classical bio informatics theory to students
- To focus computer science techniques used in biological studies
- To motivate the students to take-up research in their career

Course Outcome

K1	CO1	To introduce the biological databases and computer languages
K2	CO2	To understand the sequence analysis techniques
K3	CO3	To analyse the structure of proteins with the help of computers
K4	CO4	To distinguish genomics from proteomics
K5	CO5	To encourage the students to take-up research in Bio informatics and Drug discovery

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	L	M	H	M	H	H	H	H	H	H
CO2	M	H	H	M	H	H	H	H	H	H
CO3	M	H	H	M	H	H	H	H	H	H
CO4	M	H	H	M	H	H	H	H	H	H
CO5	L	H	H	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY510	Course Title	2022-2025
		BIostatistics	Semester 5
Hrs/Week	5		Credits

Course Objective

- To acquire knowledge on basic arithmetic and bio statistical methods
- To introduce the application of computers in Bio statistics
- To instill confidence among the students in taking up research and opting for inter disciplinary career options

Course Outcome

K1	CO1	To learn the sampling methods and data collection methods
K2	CO2	To understand the role of statistics in solving biological problems
K3	CO3	To illustrate the different statistical methods to study a population
K4	CO4	To analyze and interpret sampled data using various methods
K5	CO5	To encourage students to take up research and other interdisciplinary courses for their higher studies

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	L	H	H	H	H	H	H	H	H	H
CO2	M	H	H	H	H	H	H	H	H	H
CO3	M	M	H	H	H	H	H	H	H	H
CO4	L	M	H	H	H	H	H	H	H	H
CO5	L	H	H	M	H	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY5E1	Course Title	2022-2025
		ELECTIVE-I-MICROBIOLOGY AND PLANT PATHOLOGY	Semester 5
Hrs/Week	5		Credits

Course Objective

- To know the microbial biodiversity
- To learn the techniques in bacteriology and immunology
- To know plant diseases and its control

Course Outcome

K1	CO1	To appreciate the diversity of microbes
K2	CO2	To understand the basic defence mechanism and concept of Immunology
K3	CO3	To demonstrate the food and water samples for contamination
K4	CO4	Together and on training in culturing microbes
K5	CO5	To summarize the economically important plant disease

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	M	M	L	H	H	H	H	H	H
CO2	H	H	M	L	H	H	H	H	H	H
CO3	M	M	H	M	H	H	H	H	H	H
CO4	H	H	H	M	H	H	H	H	H	H
CO5	M	M	M	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Coursecode	22UBY5E2	CourseTitle	2022-2025
		ELECTIVE–IHERBALANDETHNO BOTANY	Semester5
Hrs/Week5			Credits5

CourseObjective

- To understand the history,scope and importance of medicinal plants and ethnobotanical science
- To familiarize with common medicinal plants of this region
- To know herbs,herbal products,phytochemical compounds and their medicinal uses

Course Outcome

K1	CO1	To understand the usage of plants for various purposes including therapeutics
K2	CO2	To explore general, principal of Ethnobotany
K3	CO3	To obtain plant use information of indigenous people
K4	CO4	To conserve endangered and endemic plants
K5	CO5	To obtain comprehensive knowledge of various herbal plants and the medicinal Values through primitive culture

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	M	H	H	H	H	H	H
CO2	H	H	M	M	H	H	H	H	H	H
CO3	M	M	L	H	M	H	H	H	H	H
CO4	L	M	L	H	M	H	H	H	H	H
CO5	M	M	M	H	M	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY5E3	Course Title	2022-2025
		ELECTIVE-I-HERBAL COSMETICS AND COSMECEUTICALS	Semester 5
Hrs/Week	5		Credits

Course Objective

- To understand the role of herbs as a source of natural and safe cosmetics.
- To learn the principles of herbal cosmetics
- To expose the students to prepare home recipes with available herbs

Course Outcome

K1	CO1	To recollect the medicinal herbs and the need for herbal cosmetics
K2	CO2	To comprehend the principles behind herbal cosmetics
K3	CO3	To prepare the selected personal care products using herbs
K4	CO4	To identify the local plants that can be used up for herbal cosmetics.
K5	CO5	To encourage the students to start-up a small scale Herbal Cosmetic unit

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	M	M	H	H	M	H	H	H	H	H
CO2	M	H	H	H	M	H	H	H	H	H
CO3	M	L	H	H	M	H	H	H	H	H
CO4	H	M	H	H	M	H	H	H	H	H
CO5	M	M	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	ProgrammeTitle	BachelorofScience (BOTANY)
Course code 22UBY5AL1		CourseTitle ADVANCED LEARNER COURSE - I BIOLOGICAL DISASTER–MITIGATION & MANAGEMENT	2022-2025 Semester5
Hrs/Week	SS		Credits2

CourseObjective

- To teach the causes of biological disasters
- To describe the adverse effects of biological disasters
- To suggest the risk reduction and preparedness measures

CourseOutcome

K1	CO1	To introduce and define biological disaster
K2	CO2	To know the types of biological disaster
K3	CO3	To acquire knowledge on management of biological disaster
K4	CO4	To explain the legislation on biological disaster
K5	CO5	To summarize the impact of post disaster management

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	...	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H
CO2	H	H	H	M	M	M	S		H	M
CO3	M	M	M	H	H	M	M		H	H
CO4	M	M	M	M	L	L	M		M	L
CO5	H	H	H	H	M	H	H	H	H	M

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY5S11	Course Title	2022-2025
		SKILLBASED ELECTIVE (MAJOR) – NETWORK AND INFORMATION SECURITY	Semester 5
Hr/Week 1			Credits 2

Course Objective

- To impart knowledge of network security, Wi-Fi security, hackers, secure networking and password managers.

Course Outcome

K1	CO1	To remember the basic concepts of network
K2	CO2	To understand the network hacking techniques
K3	CO3	To deploy information and network security
K4	CO4	To interpret the common threats today in computer network.
K5	CO5	To summarize the methods of authentication.

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	...	PSO1	PSO2
CO1	M	M	H	H	M	H	H	H	H	H
CO2	M	H	H	H	M	H	H	H	H	H
CO3	M	L	H	H	M	H	H	H	H	H
CO4	H	M	H	H	M	H	H	H	H	H
CO5	M	M	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY5S12	Course Title	2022-2025
		SKILL BASED ELECTIVE (MAJOR) – CYBERSECURITY–ETHICAL HACKING	Semester 5
Hr/Week1			Credits 2

Course Objective

- To understand the basics of cybersecurity, ethical hacking and protection.

Course Outcome

K1	CO1	To remember the basic concepts of cyber security
K2	CO2	To understand the knowledge about ethical hacking
K3	CO3	To deploy the use of hacking tools
K4	CO4	To analyze the details about internet connection.
K5	CO5	To summarize the network basics and devices interaction

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	...	PSO1	PSO2
CO1	M	M	H	H	M	H	H	H	H	H
CO2	M	H	H	H	M	H	H	H	H	H
CO3	M	L	H	H	M	H	H	H	H	H
CO4	H	M	H	H	M	H	H	H	H	H
CO5	M	M	H	H	H	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY611	Course Title	2022-2025
		PLANT PHYSIOLOGY	Semester 6
Hrs/Week	5		Credits 4

Course Objective

- To know the cellular functions of plants
- To understand the physiological functions of plants
- To comprehend the complete Plant metabolism

Course Outcome

K1	CO1	To know the Plant function and Plant movements
K2	CO2	To understand the concept of water potential, water transport
K3	CO3	To demonstrate photosynthesis and respiration in plants
K4	CO4	To enlist various plant growth regulators and stress physiology of plants
K5	CO5	To summarize the theories and concepts of Plant physiology

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	M	M	M	-	H	M	M	H	H	M
CO2	M	M	H	-	M	M	H	H	H	M
CO3	L	M	L	M	M	M	L	H	H	M
CO4	M	H	M	M	M	H	M	H	H	M
CO5	M	M	M	M	H	M	M	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY612	Course Title	2022-2025
		BIOTECHNOLOGY & GENETIC ENGINEERING	Semester 6
Hrs/Week	5		Credits
			4

Course Objective

- To acquire knowledge on plant tissue culture
- To learn the basic principles, tools and techniques in Genetic engineering
- To update the knowledge on Transgenic plants, DNA fingerprinting and other applications

Course Outcome

K1	CO1	To introduce the concept of totipotency and micropropagation
K2	CO2	To learn the principle of somatic embryogenesis, haploids, synthetic seeds
K3	CO3	To revisit the molecular tools and vectors in genetic engineering
K4	CO4	To understand the principle of gene transfer, blotting techniques and markers
K5	CO5	To summarize the applications of Biotechnology and Genetic Engineering

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	M	H	M	H	H	H	H	H	H	H
CO2	L	H	M	H	H	H	H	H	H	H
CO3	M	H	M	H	H	H	H	H	H	H
CO4	M	H	M	H	H	H	H	H	H	H
CO5	M	H	M	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY613	Course Title	2022-2025
		HORTICULTURE AND PLANT BREEDING	Semester 6
Hr/Week	5		Credits 4

Course Objective

- To study the basic principles of horticulture
- To learn the techniques of plant propagation
- To know the methods and practices in plant breeding

Course Outcome

K1	CO1	To know the methods of vegetative propagation
K2	CO2	To understand the principle behind plant propagation
K3	CO3	To propagate plants using simple horticultural techniques
K4	CO4	To develop interest in flower arrangement, fruit preservation and vegetables
K5	CO5	To encourage students to do consultancy work in Horticulture or to startup a nursery unit.

Mapping

PO / PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	H	M	H	H	H	H	H
CO2	H	H	M	L	M	H	H	H	H	H
CO3	H	H	H	H	H	H	H	H	H	H
CO4	L	H	H	H	H	H	H	H	H	H
CO5	H	H	H	H	H	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY6E4	Course Title	2022-2025
		ELECTIVE-II-HABITAT ECOLOGY	Semester 6
Hrs/Week5			Credits 5

Course Objective

- To know the uniqueness of the varying habitats in the biosphere
- To acquire the knowledge about the structure and functions of different ecosystems
- To learn the techniques for environmental assessment and ecological dynamics.

Course Outcome

K1	CO1	To appreciate the various habitats and their vegetation
K2	CO2	To understand the concept of habitats and succession
K3	CO3	To demonstrate the components of different ecosystems
K4	CO4	To know-how the methods of Environmental audits and Environmental Impact Assessment
K5	CO5	To inventor and manage the natural resources using Remote sensing techniques.

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	M	H	H	H	H	H	H
CO2	M	H	H	M	H	H	H	H	H	H
CO3	M	H	M	M	H	H	H	H	H	H
CO4	M	H	H	H	H	H	H	H	H	H
CO5	M	H	L	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	ProgrammeTitle	BachelorofScience (BOTANY)
Coursecode	22UBY6E5	CourseTitle	2022-2025
		ELECTIVE-II-BIODIVERSITY AND CONSERVATION	Semester 6
Hrs/Week5			Credits 5

CourseObjective

- To learn the concepts of Plant community, distribution and speciation
- To acquire the knowledge on Biodiversity with special reference to western ghats
- To appreciate and follow various conservation strategies

CourseOutcome

K1	CO1	To identify the Biodiversity hotspots of the world
K2	CO2	To identify the ethno botanical perspectives of conservation
K3	CO3	To apply the conservation strategies to protect the western ghats biodiversity
K4	CO4	To explain the international and national efforts to conserve the biodiversity
K5	CO5	To know the employability in the fields of conservation biology

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	M	H	H	H	H	H	H
CO2	M	H	H	M	H	H	H	H	H	H
CO3	M	H	H	L	M	H	H	H	H	H
CO4	L	H	L	M	M	H	H	H	H	H
CO5	H	H	H	M	H	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY6E6	Course Title	2022-2025
		ELECTIVE-II-ENVIRONMENTAL BIOTECHNOLOGY	Semester 6
Hrs/Week	5		Credits
			5

Course Objective

- To learn the biotechnological intervention in abating pollution
- To acquire the knowledge on EIA, Green audit to ensure sustainable
- To educate the alternative sources of energy

Course Outcome

K1	CO1	To comprehend the quality of air, water and soil as per BIS
K2	CO2	To learn the preparation of documents like EIA, EIS, Green audit
K3	CO3	To illustrate the role of bioindicators in monitoring the environment
K4	CO4	To analyse the concepts of bioremediation and biological detoxification
K5	CO5	To evaluate the production and utility of non-conventional energy resources

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	M	H	H	H	H	H	H	H	H	H
CO2	L	H	H	M	H	H	H	H	H	H
CO3	H	H	M	M	H	H	H	H	H	H
CO4	M	H	M	H	H	H	H	H	H	H
CO5	M	H	M	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY6E7	Course Title	2022-2025
		ELECTIVE- III – BIOPROSPECTING	Semester 6
Hrs/Week	5		Credits 5

Course Objective

- To understand the current practices in Bio prospecting
- To know the basics and concepts of pharmaceutical bioprospecting
- To learn the marine and microbial metabolites and its applications

Course Outcome

K1	CO1	Understand the basic concepts of bioprospecting
K2	CO2	Learn the assays in medical bioprospecting
K3	CO3	Recognize the value of marine bio resources
K4	CO4	Analyse the techniques and applications of microbial populations
K5	CO5	Summarize the significance of forest products in day-to-day life

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	M	H	H	H	H	H	H
CO2	H	M	M	L	M	H	H	H	H	H
CO3	M	M	M	L	H	H	H	H	H	H
CO4	M	M	M	M	H	H	H	H	H	H
CO5	H	H	M	M	M	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY6E8	Course Title	2022-2025
		ELECTIVE – III – BIOFERTILIZERS	Semester 6
Hrs/Week	5		Credits
			5

Course Objective

- To learn about the bio availability of plant nutrients
- To comprehend the principles of Nitrogen fixation and Phosphate solubilization
- To learn the utility of Biofertilizers in organic farming

Course Outcome

K1	CO1	To know the microbes that are useful in the production of Bio fertilizers
K2	CO2	To understand the various microbial metabolisms in fixing Nitrogen
K3	CO3	To learn know-how techniques of mass production of Biofertilizers
K4	CO4	To realize the role of VAM in Phosphate mobilisation
K5	CO5	To identify the government initiatives in the mass production of Biofertilizers

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H
CO2	H	M	M	H	H	H	H	H	H	H
CO3	H	M	H	H	H	H	H	H	H	H
CO4	H	M	H	H	H	H	H	H	H	H
CO5	M	H	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY6E9	Course Title	2022-2025
		ELECTIVE- III –SEED TECHNOLOGY	Semester 6
Hrs/Week	5		Credits 5

Course Objective

- To understand the seed physiology, seed testing and seed storage
- To acquire knowledge on the seed certification procedures
- To learn the role of national agencies in seed development

Course Outcome

K1	CO1	Learn the development of a seed
K2	CO2	Understand the testing procedures for seed purity
K3	CO3	Classify the quality of seeds and certification
K4	CO4	Acquire skills on seed marketing
K5	CO5	Summarize the role of national agencies in seed development

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	M	H	H	H	H	H	H
CO2	H	H	M	M	M	H	H	H	H	H
CO3	M	H	H	L	M	H	H	H	H	H
CO4	M	M	M	M	H	H	H	H	H	H
CO5	H	M	M	M	H	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY614	Course Title	2022-2025
		MAJOR PRACTICAL-III (for V sem theory papers)	Semester 6
Hrs/Week	2		Credits 4

Course Objective

- To learn the plant systematic and herbarium techniques
- To study the physiological processes in the plant system
- To acquire practical knowledge on plant tissue culture and genetic engineering

Course Outcome

K1	CO1	To appreciate the diversity of flowering plants and their identification in their natural habit
K2	CO2	To get hands-on training in culturing bacteria
K3	CO3	To illustrate the economically important plant diseases
K4	CO4	To solve biological problems using mathematics
K5	CO5	To create interest in learning the applications of Genetic Engineering
K6	CO6	To obtain working knowledge in creating a word document, powerpoint, excel

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	...	PSO1	PSO2
CO1	H	H	M	M	H	H	H	H	H	H
CO2	H	H	M	M	M	H	H	H	H	H
CO3	M	H	H	L	M	H	H	H	H	H
CO4	M	M	M	M	H	H	H	H	H	H
CO5	H	M	M	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	22UBY615	Course Title	2022-2025
		MAJOR PRACTICAL-IV (for VI sem theory papers)	Semester 6
Hrs/Week	2		Credits 4

Course Objective

- To acquire basic knowledge in mathematics & biostatistics
- To create programs for bioinformatics
- To understand and use bioinformatics tools

Course Outcome

K1	CO1	To compare the physiological function of plants under different environmental conditions
K2	CO2	To know the economically important plants and their products
K3	CO3	To create interest in rearing plants <i>in vitro</i>
K4	CO4	To learn the bioinformatics tools to analyse the protein structure
K5	CO5	To study the vegetation using Quadrat and transect method

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	M	H	H	H	H	H	H
CO2	H	H	M	M	M	H	H	H	H	H
CO3	M	H	H	L	M	H	H	H	H	H
CO4	M	M	M	M	H	H	H	H	H	H
CO5	H	M	M	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22UBY5AL2		Course Title ADVANCED LEARNER COURSE-II BIONANO TECHNOLOGY	2022-2025 Semester 6
Hrs/Week			Credits 2

Course Objective

- To impart basic knowledge on the nanolevel integration of chemistry, physics and biology.
- To learn the concept of biomaterials and biomolecules as bases for inorganic structures.
- To know the role of biomolecules as nano widgets.
- To study the diversity of application of nanodevices

Course Outcome

K1	CO1	To study the fundamentals of bionanotechnology.
K2	CO2	To learn the role of biomolecules at nano scale.
K3	CO3	To study the nanomaterials and devices and their functions at cellular level.
K4	CO4	To acquire knowledge on mimicking the biological systems.
K5	CO5	To inculcate the role of nanobots and their diversified application.

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	...	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H
CO2	H	M	M	H	H	H	H		M	M
CO3	H	H	H	M	M	M	M		M	M
CO4	M	M	M	L	L	L	M		M	M
CO5	H	H	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	ProgrammeTitle	BachelorofScience (BOTANY)
Coursecode	22UBY6S22	CourseTitle	2022-2025
		SKILL BASED ELECTIVE(MAJOR)– FOREST BOTANY	Semester 6
Hr/Week1			Credits 2

CourseObjective

- To impart theoretical and practical knowledge in all the areas of forestry
- To educate the students with conservation practices to protect Biodiversity
- To learn and update the Environmental Acts

CourseOutcome

K1	CO1	To know the history and types of forests
K2	CO2	To understand the principle of conservation
K3	CO3	To develop interest in marketing of forest products
K4	CO4	To explain the Environmental acts of India
K5	CO5	To enable students to take up research in Forest Botany

Mapping

PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	M	M	H	H	H	H	H
CO2	M	H	M	M	M	H	H	H	H	H
CO3	M	M	L	M	M	H	H	H	H	H
CO4	M	M	M	M	S	H	H	H	H	H
CO5	H	H	M	H	M	H	H	H	H	H

H-High;M-Medium;L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Coursecode	22UBY6S22	CourseTitle	2022-2025
		SKILL BASED ELECTIVE(MAJOR)– MUSHROOM CULTIVATION	Semester 6
Hr/Week1			Credits 2

Course Objective

- To acquire knowledge on identifying edible mushrooms
- To know the mushroom culture techniques
- To encourage the students to start-up a mushroom culture unit

Course Outcome

K1	CO1	To identify edible mushrooms from poisonous ones
K2	CO2	To understand the mushroom cultivation
K3	CO3	To know-how the mushroom culture techniques
K4	CO4	To create interest in preparing mushroom recipes
K5	CO5	To motivate the students to start-up a mushroom culture unit

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	H	H	M	H	H	H	H	H
CO2	M	M	H	H	M	H	H	H	H	H
CO3	M	M	H	H	M	H	H	H	H	H
CO4	M	M	H	H	M	H	H	H	H	H
CO5	L	M	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code 22VAD304	Course Title		2022-2025
	VALUE ADDED COURSE (MAJOR) – ORGANIC FARMING		Semester 3
Hr/Week1			Credits 1

Course Objective

- To learn the concept and simple techniques in organic farming
- To comprehend the principles and method so integrative farming
- To know the good water and weed management practices

Course Outcome

K1	CO1	To know-how make a compost using pit method
K2	CO2	To learn the preparation of manures, panchakavya
K3	CO3	To know the methods in integrated plant protection management
K4	CO4	To update the procedure inorganic crops certification
K5	CO5	To encourage the students to start and practice organic farming in their farms

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	M	M	H	H	M	H	H	H	H	H
CO2	M	M	H	H	M	H	H	H	H	H
CO3	M	M	H	H	M	H	H	H	H	H
CO4	M	M	H	H	M	H	H	H	H	H
CO5	L	M	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low

Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code		Course Title	2022-2025
22VAD404		VALUE ADDED COURSE (MAJOR)- COCONUT FARMING	Semester 4
Hr/Week 1			Credits 1

Course Objective

- To acquire knowledge on the coconut cultivation
- To identify coconut pests and diseases
- To learn to make value added product of coconut

Course Outcome

K1	CO1	To understand the value of coconut products
K2	CO2	To learn the coconut farming practices
K3	CO3	To diagnose the diseases and pests of coconut
K4	CO4	To create interest in making value added products of coconut
K5	CO5	To motivate the students to market value added products of coconut

Mapping

PO / PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	H	H	M	H	M	H	H	H	H	H
CO2	M	H	H	H	M	H	H	H	H	H
CO3	H	H	M	H	M	H	H	H	H	H
CO4	M	H	H	H	M	H	H	H	H	H
CO5	L	H	H	H	H	H	H	H	H	H

H-High; M-Medium; L-Low



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