KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)
Re-accredited by NAAC with 'A+' Grade (4th Cycle)
College of Excellence (UGC) Coimbatore – 641 029

DEPARTMENT OF BOTANY

COURSE OUTCOMES (CO)

M.SC. BOTANY

For the students admitted
in the Academic Year 2025-2026

25PBO101

Programme Code: 05		**M.Sc., BOTANY**			
Core Paper 1: PLANT DIVERSITY - I					
Batch 2025-2026	**Semester I**	**Hours / Week 7**	**Total Hours 105**	**Credits 5**	**Skill Development**

COURSE OBJECTIVES

- To obtain knowledge on diverse groups of Thallophytes.
- To impart insight knowledge on the diversity, structural organization and reproduction of algae, fungi and lichens.
- To acquire knowledge on the life cycle patterns of Thallophytes and their significance.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1	CO1	Grasp the basic concepts of lower life forms.
↕	CO2	Understand the diversity in habits, habitats and organization of various groups of lower plants.
	CO3	Explore knowledge on the modes of nutrition and fructifications in fungi
	CO4	Apply the inherit knowledge on the exploitation of useful products from lower forms for the betterment of human welfare.
K5	CO5	Evaluate the structural organization and life cycle patterns of various lichens.

25PBO102

Programme Code: 05		**M.Sc., BOTANY**			
Core Paper 2: PLANT DIVERSITY – II					
Batch 2025-2026	**Semester I**	**Hours / Week 7**	**Total Hours 105**	**Credits 5**	**Skill Development**

COURSE OBJECTIVES

- To impart insight knowledge on the structural organizations and life cycle patterns of Bryophytes, Pteridophytes and Gymnosperms.
- To understand the basic concepts of evolutionary trends in Cryptogams and Phanerogams.
- To learn the preserved vestiges of various plant life forms of geological past.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1	CO1	Gain knowledge on ecological and phylogenetical aspects of Bryophytes.
↕	CO2	Understand the general distribution and characters of Pteridophytes.
	CO3	Apply knowledge on vascular organization and evolution of Pteridophytes.
	CO4	Distinguish various diagnostic features and distribution of Gymnosperms.
K5	CO5	Analyze the acquired knowledge on diversity of plant species and apply to the field level.

25PBO103

Programme Code: 05	**M.Sc., BOTANY**				
Core Paper 3: MICROBIOLOGY AND PLANT PATHOLOGY					
Batch 2025-2026	**Semester I**	**Hours / Week 6**	**Total Hours 90**	**Credits 4**	**Skill Development**

COURSE OBJECTIVES

- To disseminate knowledge on pathogenic group of organisms.
- To gain knowledge on disease management.
- To analyze the quality of water.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Recognize evolutionary relationships of microorganisms through various classifications.
	CO2	Understand the techniques of isolation and culture of microorganisms.
	CO3	Apply recent technologies and methods for the cultivation of microorganisms.
	CO4	Acquire knowledge on various plant diseases and their control measures
	CO5	Implement the plant disease management techniques in the fields.

25PBO1CL

Programme Code: 05	**M.Sc., BOTANY**				
Core Practical 1: PLANT DIVERSITY- I & II, MICROBIOLOGY AND PLANT PATHOLOGY					
Batch 2025-2026	**Semester I**	**Hours / Week 5**	**Total Hours 75**	**Credits 3**	**Skill Development**

COURSE OBJECTIVES

- To understand the diversity and distribution of lower life forms.
- To gain hands-on experience with techniques like culturing and pathogen isolation.
- To understand the pathogenic organisms causing various diseases.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K3 ↕ K5	CO1	Acquire and analyze inter-relationships between various lower life forms
	CO2	Examine variations in structural organization and reproduction of Cryptogams and Phanerogams
	CO3	Acquire requisite skill in the use and care of basic microbiological equipment; performance of basic laboratory procedures in microbiology Analyze techniques used for cultivation of microorganisms
	CO4	Identify and classify microorganisms using various microbial techniques. Gain knowledge on microbial diversity in different environments.
	CO5	Understand the types of plant diseases and identify the various symptoms of plant disease caused by casual organism.

25PBO204

Programme Code: 05		**M.Sc., BOTANY**			
Core Paper: 4 –ANATOMY, EMBRYOLOGY OF ANGIOSPERMS AND MICROTECHNIQUES					
Batch 2025-2026	**Semester II**	**Hours / Week 7**	**Total Hours 105**	**Credits 5**	**Skill Development**

COURSE OBJECTIVES

- To acquire knowledge about complex vascular tissues.
- To obtain inherit knowledge on micro and mega sporangial development and their functions.
- To understand the histochemical techniques involved in permanent micro slides.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Recognize various histochemical techniques involved in anatomy and embryology.
	CO2	Understand phylogenetic relationship of vascular tissues.
	CO3	Explore the embryological features of plants
	CO4	Analyze the techniques of parthenocarpy and polyembryony for the improvement of economically important crop species.
	CO5	Determine knowledge on the principles and concepts of histochemical staining techniques

25PBO205

Programme Code: 05		**M.Sc., BOTANY**			
Core Paper 5: CELL BIOLOGY, GENETICS, PLANT BREEDING AND BIOSTATISTICS					
Batch 2025-2026	**Semester II**	**Hours / Week 7**	**Total Hours 105**	**Credits 5**	**Skill Development**

COURSE OBJECTIVES

- To learn the concept of genes and gene interactions.
- To study about the principles of Mendelian's and non-Mendelian's inheritance
- To assess the methods of plant breeding and crop improvement
- To learn the experimental designs using biostatistical tools

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Acquire knowledge on various fields of genetics
	CO2	Identify the sex-linked disease among the population
	CO3	Implement knowledge on the concepts of mutation for the development of new plant varieties
	CO4	Describe various molecular breeding techniques for genetic improvement of crops
	CO5	Evaluate appropriate biostatistical tools for designing any biological experiments

25PBO206

Programme Code: 05	**M.Sc., BOTANY**				
Core Paper 6: BIOINSTRUMENTATION AND RESEARCH METHODOLOGY					
Batch	**Semester**	**Hours / Week**	**Total Hours**	**Credits**	**Skill Development**
2025-2026	**II**	**6**	**90**	**4**	

COURSE OBJECTIVES

- To seed the basic knowledge about instruments
- To make students understand the applications of instruments in Botany
- To train the students handle and maintain instruments
- To understand basic concepts of research and its methodologies
- To identify appropriate research topics

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Inculcate the working principles of biological instruments
	CO2	Acquire knowledge on separation and identification of compounds based on chromatographic techniques
	CO3	Know basic principle for the separation of DNA, RNA and protein molecules
	CO4	Demonstrate knowledge of Research Processes and Perform literature reviews using print and online databases
	CO5	Identify, Explain, compare and prepare key elements of a research proposal/report

25PBO2CM

Programme Code: 05	**M.Sc., BOTANY**				
Core Practical 2: ANATOMY, EMBRYOLOGY OF ANGIOSPERMS, MICROTECHNIQUES, CELL BIOLOGY, GENETICS, PLANT BREEDING, BIOSTATISTICS, BIOINSTRUMENTATION AND RESEARCH METHODOLOGY					
Batch	**Semester**	**Hours / Week**	**Total Hours**	**Credits**	**Skill Development**
2025-2026	**II**	**5**	**75**	**3**	

COURSE OBJECTIVES

- To obtain insight knowledge on variations in the internal structural organization among plants and impart inherent knowledge on the basic techniques and modern concepts of microtome
- To understand genetic analysis at gene, genome and population level
- To know the fundamentals of hypothesis testing, tests of significance and apply appropriate parametric tests and interpret the findings.
- To utilize the applications of instruments for biochemical studies

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K3 ↕ K5	CO1	Understand the primary and secondary structure of plants.
	CO2	Examine different stages of mitosis and meiosis cell division in plant cell
	CO3	Equip with the skills to analyze biological data using statistical methods, interpret results and involve hands-on experience with statistical software like SPSS & R
	CO4	Handle instruments for biochemical practical's
	CO5	Utilize protocols for research process

25PBO307

Programme Code: 05		**M.Sc., BOTANY**			
Core Paper 7: TAXONOMY AND BIOSYSTEMATICS					
Batch 2025-2026	**Semester III**	**Hours / Week 6**	**Total Hours 90**	**Credits 4**	**Skill Development**

COURSE OBJECTIVES

- To study about the classification and nomenclature of Angiosperms.
- To understand the theory and practices involved in plant systematics.
- To learn the striking affinities of different plant families.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Acquire knowledge on principles and objectives of ICN and APG
	CO2	Differentiate various systems of classifications based on natural and phylogenetic characters of flowering plants
	CO3	Explore proficiency skills using keys for identification of any unknown plant species
	CO4	Apply basics of biosystematics in various fields of plant sciences
	CO5	Evaluate modern advances of taxonomical tools for plant identification

25PBO308

Programme Code: 05		**M.Sc., BOTANY**			
Core Paper 8: BIOPHYSICS AND BIOCHEMISTRY					
Batch 2025-2026	**Semester III**	**Hours / Week 7**	**Total Hours 105**	**Credits 5**	**Employability**

COURSE OBJECTIVES

- To understand the role of electrons in absorption of light and to impart knowledge on bioenergetics of living organisms
- To know the biological importance of the macromolecules
- To learn about the hormones and vitamins and their roles

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Acquire knowledge on electromagnetic spectrum.
	CO2	Learn on energy production in cell
	CO3	Impart knowledge on types and functions of carbohydrates and lipids
	CO4	Gain knowledge on key macro molecules and carry instructions for the functioning of the cell
	CO5	Understand the importance of enzymes and their mode of action

25PBO309

Programme Code: 05	**M.Sc., BOTANY**				
Core Paper 9: PLANT PHYSIOLOGY					
Batch 2025-2026	**Semester III**	**Hours / Week 6**	**Total Hours 90**	**Credits 4**	**Skill Development**

COURSE OBJECTIVES

- To study the basic physiological functions of plants.
- To learn about the metabolic pathways in plants.
- To understand the importance of phytohormones in the growth of plants.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Acquire knowledge on plant - water relations in a plant cell
	CO2	Understand the significance of metabolic pathways in plants.
	CO3	Acquire knowledge in terms of pathways of photosynthesis, respiration and nitrogen metabolism in higher plants
	CO4	Assess stress resistance mechanism for the better yield of crops.
	CO5	Apply acquired knowledge on phytohormones and their applications in fruit ripening process.

25PBO3CN

Programme Code: 05	**M.Sc., BOTANY**				
Core Practical 3: TAXONOMY, BIOSYSTEMATICS, BIOPHYSICS, BIOCHEMISTRY AND PLANT PHYSIOLOGY					
Batch 2025-2026	**Semester III**	**Hours / Week 5**	**Total Hours 75**	**Credits 3**	**Skill Development**

COURSE OBJECTIVES

- To identify selected taxa using taxonomic keys.
- To learn the significance of EMR and spectrum.
- To quantify the biochemical contents present in a given plant sample.
- To obtain knowledge on physiological functions of the plants.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K3 ↕ K5	CO1	Acquire knowledge on identification of flowering plants using taxonomic keys and learn about the methods and preparation of herbarium.
	CO2	Provide knowledge on the concepts and principles of radioactive emissions.
	CO3	Apply principles and procedures for the estimation of macromolecules in plant sample.
	CO4	Study the physiological process of plants.
	CO5	Handle instruments for biophysics and biochemical practical's.

25PBO410

Programme Code: 05	**M.Sc., BOTANY**				
Core Paper 10: ECOLOGY, BIOENERGETICS AND NATURAL RESOURCE MANAGEMENT					
Batch 2025-2026	**Semester IV**	**Hours / Week 7**	**Total Hours 105**	**Credits 5**	**Skill Development**

COURSE OBJECTIVES

- To understand the structural and functional organization of the ecosystems.
- To know the causes of environmental deterioration and possible measures for their rejuvenation.
- To understand the natural calamities and disaster management.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Gain knowledge on community concepts and their ecological niches
	CO2	Understand the principles and process of biogeochemical cycling between organisms and the environment
	CO3	Apply concepts of energy flow and dispersion in various ecosystems
	CO4	Monitor environmental hazards and their control measures
	CO5	Evaluate the changes in biodiversity and their management approaches through remote sensing techniques

25PBO411

Programme Code: 05	**M.Sc., BOTANY**				
Core Paper 11: PLANT BIOTECHNOLOGY					
Batch 2025-2026	**Semester IV**	**Hours / Week 7**	**Total Hours 105**	**Credits 4**	**Skill Development**

COURSE OBJECTIVES

- To study the basic of plant genome and tissue culture techniques
- To equip students with theoretical knowledge regarding the techniques and applications of Plant Biotechnology and Genetic Engineering
- To help students to get a career in Industry/R&D/Academic

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Describe the genome organizations in plants
	CO2	Work on plant cell and tissue culture systems
	CO3	Explain the genetic transformation techniques in plants
	CO4	Utilize the applications of genetic transformation techniques in plants
	CO5	Analyze and evaluate the importance of metabolic engineering and molecular farming technology in plants

25PBO412

Programme Code: 05		**M.Sc., BOTANY**			
Core Paper 12: BIOINFORMATICS					
Batch 2025-2026	**Semester IV**	**Hours / Week 7**	**Total Hours 105**	**Credits 4**	**Skill Development**

COURSE OBJECTIVES

- To understand the concepts of bioinformatics and its application in various fields of plant science
- To understand the structure of biological databases and their utilities.
- To impart knowledge on various tools of biological databases.

COURSE OUTCOME

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Grasp knowledge on various biological databases.
	CO2	Impart knowledge on gene and its expression both in prokaryotes and eukaryotes.
	CO3	Obtain knowledge on the sequences of amino acids in protein molecules.
	CO4	Acquire knowledge on appropriate algorithms and to identify the similarities and dissimilarities existing between the genes of various organisms.
	CO5	Evaluate evolutionary relationships between organisms and biomolecular visualization tools.

25PBO4CO

Programme Code: 05		**M.Sc., BOTANY**			
Core Practical 4 - ECOLOGY, BIOENERGETICS, NATURAL RESOURCE MANAGEMENT, PLANT BIOTECHNOLOGY AND BIOINFORMATICS					
Batch 2025-2026	**Semester IV**	**Hours / Week 5**	**Total Hours 75**	**Credits 2**	**Skill Development**

COURSE OBJECTIVES

- To find out the dominant species in the particular environment.
- To learn the basic techniques of plant biotechnology.
- To use bioinformatic tools to analyze different protein or nucleotide sequences to reach meaningful conclusions.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K3 ↕ K5	CO1	Analyze the physico chemical nature of the soil.
	CO2	Gain the hands on exposure on plant cell and tissue culture and molecular techniques
	CO3	Work on various aspects of plant biotechnology
	CO4	Students understood the skills to analyses biological data and use computational tools, software and databases
	CO5	Evaluate various techniques, algorithms and tools used for phylogenetic analysis.

25PBO4Z1

Programme Code: 05		**M.Sc., BOTANY**			
PROJECT & VIVA – VOCE					
Batch	**Semester**	**Hours / Week**	**Total Hours**	**Credits**	**Skill Development**
2025-2026	**IV**	**-**	**-**	**5**	

COURSE OBJECTIVES

- To acquire inherent knowledge and exposures on relevant practical problems in various fields.
- To execute appropriate analytical skills and skills sets on selected problems.
- To impart insight knowledge on problem solving skills and their proper execution

COURSE OUTCOME

On successful completion of the project work, the students will be able to

K3 ↕ K5	CO1	Apply theoretical knowledge in the real field of research
	CO2	Analyze the importance of tasks in collecting the datas
	CO3	Evaluate relationships existing between theories and experiments
	CO4	Provide problem solving skills on selected problems in any disciplines of plant sciences
	CO5	Execute appropriate statistical tools and interpretation of appropriate results

Programme Code: 05	M.Sc., BOTANY			
	Major Elective 1: FOREST RESOURCES AND CONSERVATION			
Batch 2025-2026	Hours / Week 5	Total Hours 75	Credits 5	Skill Development

COURSE OBJECTIVES

- To understand the importance and value of trees.
- To learn the revenue sources of forests.
- To grasp various products derived from forests for the betterment of human beings.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1	CO1	Recognize the forest cover in India and their deterioration.
K2	CO2	Understand the significance of forest and climate change for the enhancement of environmental quality.
K3	CO3	Apply inherit knowledge on major and minor forest produce for the betterment of human welfare.
K4	CO4	Analyze forest based products and their varied applications.
K5	CO5	Implement acquired knowledge on conservation of bioresources.

Programme Code: 05	M.Sc., BOTANY			
	Major Elective: 2 - SEED TECHNOLOGY			
Batch 2025-2026	Hours / Week 5	Total Hours 75	Credits 5	Skill Development

COURSE OBJECTIVES

- To understand the principles of agronomy of seeds.
- To learn the methodology of seed germination, seed drying and seed treatments.
- To know the seed dormancy and their significance

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Recognize seed borne diseases due to genetic constitution and storage of seeds.
	CO2	Study principles and practices of seed health testing and management of seed borne diseases
	CO3	Gain knowledge on principles and techniques of seed processing for quality upgradation and storage for maintenance of seed quality.
	CO4	Assess various feasible seed treatment and marketing strategies for various crop plants.
	CO5	Evaluate various methods of breaking seed dormancy.

Programme Code: 05	M.Sc., BOTANY			
	Major Elective 3 - FOOD SCIENCE AND NUTRITION			
Batch 2025-2026	Hours / Week 5	Total Hours 75	Credits 5	Skill Development

COURSE OBJECTIVES

- To learn the importance of different kinds of foods.
- To acquire knowledge on nutritive values of food.
- To create awareness about food adulterations

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Recognize various nutritive composition of cereals and cereal products.
	CO2	Understand processing practices of various foods based on their nutrients composition.
	CO3	Apply acquired knowledge on food processing technology in vegetables and fruits.
	CO4	Assess nutritive evaluation of spices and sugar based products.
	CO5	Evaluate the technologies employed for the processing of beverages.

Programme Code: 05	M.Sc., BOTANY			
	Major Elective 4: MOLECULAR BIOLOGY			
Batch 2025-2026	Hours / Week 5	Total Hours 75	Credits 5	Skill Development

COURSE OBJECTIVES

- To understand the basic knowledge and organization of genome
- To learn the historical development of molecular biology
- To know and acquire fundamental knowledge on molecular mechanism of gene expression and protein synthesis

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Gain fundamental knowledge on molecular biology
	CO2	Understand and acquire knowledge on nucleic acid and genome organization
	CO3	Gain impact knowledge on molecular mechanism of gene expression and various molecular process at RNA level
	CO4	Apply knowledge on machinery and molecular mechanism of protein synthesis
	CO5	Evaluate the acquired knowledge on molecular biological tools in to the future research

Programme Code: 05	M.Sc., BOTANY			
	Major Elective 5: HORTICULTURE			
Batch 2025-2026	Hours / Week 5	Total Hours 75	Credits 5	Skill Development

COURSE OBJECTIVES

- To learn about the propagation methods of horticultural crops.
- To study about gardening, landscaping and their maintenance.
- To acquire knowledge about commercial floriculture and cut flower arrangements.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Gain knowledge on solutions for a wide spectrum of plant health issues.
	CO2	Understand the components and adornments of gardening.
	CO3	Apply inherent knowledge on various plant propagation techniques.
	CO4	Explore knowledge on cultivation practices of fruits and vegetables.
	CO5	Demonstrate the aesthetic value of gardening .

Programme Code: 05	M.Sc., BOTANY			
	Major Elective 6: ALGAL TECHNOLOGY			
Batch 2025-2026	Hours / Week 5	Total Hours 75	Credits 5	Skill Development

COURSE OBJECTIVES

- To study the laboratory culture protocol for algae
- To know the morphological characters and nutrient requirement of algae
- To learn seaweed farming and harvesting methods

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Provide knowledge on commercial importance of algae
	CO2	Prepare and optimize the medium for culturing algae
	CO3	Work on seaweeds and utilize the benefits
	CO4	Learn various culture techniques for mass cultivation of seaweeds
	CO5	Start a small scale unit for marketing of cultivated algae

Programme Code: 05	M.Sc., BOTANY			
	Major Elective 7: BIOINOCULANTS AND SOLID WASTE MANAGEMENT			
Batch 2025-2026	**Hours / Week 5**	**Total Hours 75**	**Credits 5**	**Skill Development**

COURSE OBJECTIVES

- To study the basic knowledge on biofertilizers
- To understand the impact of solid waste on environment, human and plant health
- To acquire knowledge about reuse, recycle and recovery of solid waste by biological processing methods

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Apply knowledge on implementations of biofertilizers in agriculture
	CO2	Know about microbial based fertilizers
	CO3	Acquire knowledge on solid waste management.
	CO4	Understand the method in maintenance of sanitary landfills
	CO5	Provide awareness on the various policies of solid waste management

Programme Code: 05	M.Sc., BOTANY			
	Major Elective 8: BIOTECHNOLOGY AND NANOBIOLOGY			
Batch 2025-2026	**Hours / Week 5**	**Total Hours 75**	**Credits 5**	**Skill Development**

COURSE OBJECTIVES

- To know the principles and applications of plant tissue culture
- To learn and familiarize plant genetic transformation and its applications
- To learn the basic knowledge of Nanobiology

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Acquire knowledge on various developments and potential applications of biotechnology
	CO2	Understand the basic techniques of gene manipulation and their rapid applications in the field of plant tissue culture and genetic engineering
	CO3	Exploit nanotechnological tools to create new biomedical research tools, diagnostic tests and drug delivery systems
	CO4	Apply the concept of nanotechnology for achieving major task using nanoparticles
	CO5	Evaluate the applications of both biotechnology and nanobiology

Programme Code: 05	M.Sc., BOTANY			
	NON-MAJOR ELECTIVE 1: HERBAL MEDICINE			
Batch 2025-2026	Hours / Week 4	Total Hours 60	Credits 4	Skill Development

COURSE OBJECTIVES

- To impart inherent knowledge on traditional system of herbal medicine
- To understand the history, scope and therapeutic aspects of medicinal plants
- To apply the gained knowledge and advice the community on issues concerning the cultivation, harvesting and processing of medicinal plants and their products.
- To classify crude drugs based on their morphological, taxonomical, chemical or pharmacological characters

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1	CO1	Recollect indigenous knowledge on Indian systems of traditional medicine
↕	CO2	Provide therapeutic and pharmaceutical aspects of traditionally used medicinal plants
	CO3	Apply various methods of plant analysis for the exploitation of phytochemical constituents from plant sources
K5	CO4	Analyze cultivation and marketing strategies of medicinal plants
	CO5	Assess the potential applications of natural plant based drugs

Programme Code: 05	M.Sc., BOTANY			
	Non - Major Elective 2: APPLIED MICROBIOLOGY			
Batch 2025-2026	Hours / Week 4	Total Hours 60	Credits 4	Skill Development

COURSE OBJECTIVES

- To provide basic knowledge on the various applications of microorganisms
- To introduce the techniques involved in microbiology
- To assess the role of microorganisms in human welfare

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1	CO1	Acquire knowledge on the fundamental aspects of microbiology.
↕	CO2	Understand the use of microbes in industries for the welfare of mankind.
	CO3	Apply knowledge on preservation of food and vegetables using suitable techniques and their commercial applications
	CO4	Grasp the knowledge on distribution of microbes in the environment and prevent their harmful effects.
K5	CO5	Predict the pathogenesis and control of disease causing microbes.

Programme Code: 05	M.Sc., BOTANY			
	Non-Major Elective 3: LIMNOLOGY			
Batch 2025-2026	Hours / Week 4	Total Hours 60	Credits 4	Skill Development

COURSE OBJECTIVES

- To study morphological and anatomical characters of aquatic flora.
- To understand the significance of the diffused light for the planktons.
- To find the gross and net productivity in fresh water life forms.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↑ ↓ K5	CO1	Acquire knowledge on structural and functional aspects of freshwater ecosystem
	CO2	Understand the factors responsible for lotic and lentic ecosystems
	CO3	Implement knowledge on methods of conservation of fresh water bodies
	CO4	Apply inherent knowledge on various kinds of planktonic communities and their adaptations
	CO5	Compare various aspects of biomass efficiency and their productivity

Programme Code: 05	M.Sc., BOTANY			
	Non-Major Elective 4: ADVANCEMENTS IN INDUSTRY 4.0			
Batch 2025-2026	Hours / Week 4	Total Hours 60	Credits 4	Skill Development

COURSE OBJECTIVES

- Understand the biological systems and processes with the aid of communication and information technology tools.
- Familiarize with Machine Learning, Robotic Process Automation and Virtual Reality.
- Explore avenues for digitization and integration of information technology with plant biology.
- To prepare students for the 4^{th} industrial revolution and to make them a part of industrial value chain.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↑ ↓ K5	CO1	Exhibit skills in Machine Learning, Robotic Process Automation and Virtual Reality in solving biological problems.
	CO2	Demonstrate the use of Cloud Computing in different fields of plant biology
	CO3	Analyze critically various biological processes using technology based tools and resources
	CO4	Apply more efficiently the virtual reality and augmented reality into real life
	CO5	Formulate methods to collect, analyze and store biological data (data bases).

25PGI4N2

Programme Code: 05		M.Sc., BOTANY			
		Non-Major Elective 5: INFORMATION SECURITY			
Batch 2025-2026	**Semester IV**	**Hours / Week 4**	**Total Hours 60**	**Credits 4**	**Skill Development**

COURSE OBJECTIVES

- Students will identify the core concepts of Information security.
- To examine the concepts of Information Security.
- To design and implement the security features for IT and Industrial sectors

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Learn the principles and fundamentals of information security.
	CO2	Demonstrate the knowledge of Information security concepts
	CO3	Understand about Information Security Architecture.
	CO4	Analyze the various streams of security in IT and Industrial sector.
	CO5	Know about cyber laws and regulations.

25PBO3X1

Programme Code: 05		For PG STUDENTS			
Extra Departmental Course (EDC) - APPLIED HORTICULTURE					
Batch 2025-2026	**Semester III**	**Hours / Week 2**	**Total Hours 30**	**Credits 2**	**Entrepreneurship**

COURSE OBJECTIVES

- To learn about the propagation methods of horticultural crops.
- To study about gardening, landscaping and their maintenance.
- To acquire knowledge on commercial floriculture and cut flower arrangements.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Demonstrate solutions for a wide spectrum of plant health issues
	CO2	Understand the components and adornments of gardening
	CO3	Develop employability skills in the field of gardening and landscaping
	CO4	Analyze inherent knowledge on various nursery practices and their management systems
	CO5	Evaluate the concepts and principles of floriculture

25PBO0J1

Programme Code: 05	**M.Sc., BOTANY**		
JOC 1: Floriculture and Landscaping			
Batch 2025-2026	**Hours / Week 4**	**Credits 2**	**Entrepreneurship**

COURSE OBJECTIVES

- To know the latest development in the field of floriculture.
- To develop skills on arena of floriculture and landscaping.
- To create knowledge on self employment through entrepreneur skills

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Acquire knowledge on cultivation of economic flowers.
	CO2	Understand the techniques involved in flower arrangement and decoration.
	CO3	Apply knowledge on green house cultivation practices.
	CO4	Implement acquired knowledge on commercial applications of plants in landscape gardening.
	CO5	Demonstrate strategic plans for designing various types of gardens

25PBO0J2

Programme Code: 05	**M.Sc., BOTANY**		
JOC 2 : Food Processing and Preservation			
Batch 2025-2026	**Hours / Week 4**	**Credits 2**	**Entrepreneurship**

COURSE OBJECTIVES

- To know the recent technologies developed in the field of food science
- To develop skills in the aspects of Food processing and preservation
- To get employment opportunities in food processing industries

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Recognize about preliminary preparation of food through various processes
	CO2	Understand the nutritive values and significance of cereals
	CO3	Apply knowledge on pulses and nuts and their nutritive perspectives
	CO4	Implement food preservation techniques applicable for day to day life
	CO5	Evaluate strategies for the preservation of food products and their quality enhancement