Department of Botany

B.Sc. Botany

S.No.	Course Code	Course Name	Course Outcomes
		SEMESTER- I	
1.	21UBYC11	Core Course – I: Algae, Fungi, Lichens and Bryophytes	**CO1[K1]:**define the salient features and general characters of cryptogams plant **CO2[K2]:** illustrate the structure and life cycle of Algae, Fungi, Lichens and Bryophytes **CO3[K3]:** utilize the economic importance of Algae, Fungi, Lichen and Bryophytes **CO4[K4]:** examine the reproductive characters of different lower plants **CO5[K4]:** differentiate the Algae, Fungi, Lichens and Bryophytes
2.	21UBYC1P	Core Course – II: Practical: Algae, Fungi, Lichens And Bryophytes	**CO1[K1]:**draw the internal structure of Algae, Fungi and Bryophytes **CO2[K2]:** illustrate the external morphology of Algae, Fungi, Lichens and Bryophytes **CO3[K3]:** prepare the permanent slide for Algae and Bryophytes **CO4[K4]**: distinguish the various life forms of Algae, Fungi and Bryophytes **CO5[K5]:** predict the identification key characters of cryptogam

S.No.	Course Code	Course Name	Course Outcomes
3.	21UESR11	Ability Enhancement Compulsory Course- I : Environmental Studies	**CO1[K1]:** recognize the importance of environment and role of Individuals in its protection. **CO2[K2]:** explain the key concepts of Ecosystem, Food Web and Bio geochemical. **CO3[K3]:** apply the right measures for the sustainable use of natural resources. **CO4[K4]:** analyse the ethical, cross-cultural, and historical context of environmental issues and the links between Human and Natural Systems. **CO5[K4]:** examine the impact of human action on the biological
4.	21UBYS11	Skill Enhancement Course – I: Nursery And Landscape Management	**CO1[K1]:** define the Nursery and Landscaping. **CO2[K2]:** demonstrate the propagation methods **CO3[K3]:** use the ornamental and medicinal plants **CO4[K4]:** simplify the home gardening methods **CO5[K4]:** differentiate the various type of garden
SEMESTER- II			

S.No.	Course Code	Course Name	Course Outcomes
5.	21UBYC21	Core Course – III: Pteridophytes, Gymnosperms and Palaeobotany	**CO1[K1]:** define the general characters of phanerogams plant **CO2[K2]:** illustrate internal morphology of Pteridophytes and Gymnosperms **CO3[K3]:** discover the structure and reproduction of phanerogams plant **CO4[K4]:** classify the phanerogams plant groups. **CO5[K5]:**appraise the economic importance species from
6.	21UBYC2P	Core Course – IV: Practical: Pteridophytes, Gymnosperms and Palaeobotany	**CO1[K2]:** demonstrate preparation of temporary and permanent mount slides. **CO2[K3]:**find-out the structural organization of Pteridophytes& Gymnosperm **CO3[K4]:** examine the internal anatomical features of Pteridophytes And Gymnosperms. **CO4[K5]:** evaluate the anatomical variation among thePteridophytes and Gymnosperms. **CO5[K6]:** assess the suitable technique for the study of internal structure of Pteridophytes and Gymnosperms.

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7.	21UBYS21	Skill Enhancement Course – II: Biofertilizer Technology	**CO1[K1]:** describe the soil components and organic fertilizers. **CO2[K2]:** classify the symbiotic and non-symbiotic bacterial inoculants in Agricultural field. **CO3[K3]:** perform the isolation and identification of symbiotic and non-symbiotic bacteria. **CO4[K4]:**inspect the importance of organic fertilizers in agricultural crops. **CO5[K5]:** justify the mass multiplication of symbiotic and non-symbiotic bacteria.
8.	21UDMG21	Disaster Management	**CO1[K1]:** outline the causes and impact of disasters. **CO2[K2]:** explain the features of national policy on disaster management. **CO3[K3]:**present the issues in rehabilitation. **CO4[K4]:**classify the mitigation measures. **CO5[K5]:**assess the role of the agencies for disaster management.
SEMESTER- III			

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9.	21UBYC31	Core Course – V: Plant Anatomy and Embryology	**CO1[K1]:** describe the structure and functions of plant cell. **CO2[K2]:** illustrate the fertilization and its types. **CO3[K3]:** apply ICT Tools for Plant anatomical Studies. **CO4[K4]:** distinguish the structures, functions and roles of apical versus lateral meristems in monocot and dicot . **CO5[K5]:**appraise the mechanism of fertilization and embryo development
10.	21UBYC3P	Core Course – VI: Practical: Plant Anatomy and Embryology	**CO1[K2]:** differentiate the monocot and Dicot Plants. **CO2[K3]:** use sectioning techniques for dissecting of plants tissues. **CO3[K4]:**analyze the different stages of Anther and Embryo development. **CO4[K5]:** dissect the embryo through mounting method. **CO5[K6]:** prepare the permanent specimen slides.
11.	21UBYA31	Allied Course – III: Invertebrata	**CO1[K1]:** detail the modern system of classification of invertebrate. **CO2[K2]:** illustrate the structure and functions of Protozoa and Porifera **CO3[K3]:** employ the vermicomposting technology and Prawn Culture **CO4[K4]:** analyse the pathology and control measures of *Ascaris* **CO5[K4]:** examine the morphological and reproductive features of invertebrates.

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12.	21UBYA3P	Allied Course – III: Practical: Zoology – I	**CO1[K2]:** explain the morphological features of Protozoa. **CO2[K3]:** use mounting techniques for dissecting honey bee. **CO3[K4]:** distinguish vertebrate and invertebrate based on morphological characters. **CO4[K4]:** dissect digestive and reproductive system of Cockroach. **CO5[K5]:** assess the morphological features of invertebrates.
13.	21UBYN31	Non Major Elective Course – I: Horticulture	**CO1[K1]:** detail the propagation methods of Horticulture crops **CO2[K2]:** explain the cultivation methods of ornamental plants **CO3[K3]:** report the various diseases of ornamental plants. **CO4[K4]:** analyse the garden, greenhouse and orchard for ornamental and economic importance plants. **CO5[K4]:**examine the preservation and storage methods of fruits and vegetables
14.	21UBYS31	Skill Enhancement Course – Iii: Mushroom Cultivation Technology	**CO1[K1]:** detail the general characters mushroom **CO2[K2]:** explain spawn preparation techniques. **CO3[K3]:** employ the mushroom cultivation techniques. **CO4[K4]:** examine the control measurement against diseases and pests of mushroom. **CO5[K4]:** differentiate the edible and poisonous Mushroom.
SEMESTER- IV			

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15.	21UBYC41	Core Course – VII: Microbiology and Plant Pathology	**CO1[K2]:** classify microbes. **CO2[K2]:** explain about the structure of Prokaryotic and Eukaryotic cell. **CO3[K3]:** use microbes as a biofertilizer. **CO4[K4]:** analyze the role of microbes in agriculture. **CO5[K5]:** appraise the role of microbes in soil fertility.
16.	21UBYC4P	Core Course – VIII: Practical: Microbiology and Plant Pathology	**CO1[K2]:** illustrate the preparation of culture media. **CO2[K3]:** perform the staining techniques. **CO3[K4]:** differentiate the Gram positive and Gram negative bacteria. **CO4 [K5]:** assess the microbial population by serial dilution methods **CO5 [K6]:** elaborate symptoms of diseases related to local crops.
17.	21UBYA41	Allied Course – IV: Chordata	**CO1[K1]:** describe about the classification of Chordata. **CO2[K2]:** explain the characteristic features of Chordates. **CO3[K3]:** determine the general and morphological characters of Aves, Mammals and Reptiles. **CO4[K4]:** examine the structure of reproductive system of mammals. **CO5[K4]:** differentiate the poisonous and non-poisonous snake.

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18.	21UBYA4P	Allied Course – IV: Practical: Zoology-II	**CO1[K2]:** demonstrate the dissection of Arterial and Venous system of Frog. **CO2[K3]:** apply mounting techniques. **CO3[K4]:**distinguish vertebrate and invertebrates based on morphological features. **CO4[K4]:** justify the adaptation of Pisces, Reptiles, Amphibia, Aves and Mammalia. **CO5[K6]:** elaborate the characteristic features of Chordata.
19.	21UBYM41	Self Paced Learning (Swayam Course): Cell Culture Technologies	**CO1[K1]:** identify the background and the key words in speaking effectively **CO2[K2]:** demonstrate independent and self-paced learning for clear understanding of the concept **CO3[K3]:** develop computer and communication skills to broaden their knowledge in the course **CO4[K3]:** use high quality reading resources, communication tools and technology to assignments and to take up test **CO5[K4]:** analyse critically and apply technical skills to comprehend the ideas prescribed

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20.	21UBYM42	Self Paced Learning (Swayam Course): Computer aided Drug Designing	**CO1[K1]:** identify the background and the key words in speaking effectively **CO2[K2]:** demonstrate independent and self-paced learning for clear understanding of the concept **CO3[K3]:** develop computer and communication skills to broaden their knowledge in the course **CO4[K3]:** use high quality reading resources, communication tools and technology to assignments and to take up test **CO5[K4]:** analyse critically and apply technical skills to comprehend the ideas prescribed
21.	21UBYN41	Non Major Elective Course – II: Herbal Medicine	**CO1[K1]:** describe uses of medicinal plants of Tamilnadu. **CO2[K2]:** explain the life style and traditional practices Tamil Nadu tribals. **CO3[K3]:** develop the methods for conservation of floristic and cultural diversity. **CO4[K4]:** analyse the importance of plants used by tribal communities.
22.	21UBYS41	Skill Enhancement Course – IV: Biology For Entrepreneurship Development	**CO1[K1]:** describe cultivation methods of *Spirulina*. **CO2[K2]:** explain the breeding techniques of egg layers. **CO3[K3]:** determine the importance of *Azolla*and*Spirulina*. **CO4[K4]:** analyse the role of microorganism in Biogas production. **CO5[K5]:** assess the role of vermicomposting in Crop production.

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23.	-	Part V – Extension	**CO1 [K1]:**recognize the importance of community service through training andeducation **CO2 [K2]:**interpret ecological concerns, consumer rights, gender issues & legal protection **CO3 [K3]:**develop team spirit, verbal/non verbal communication and organizational ethics by participating in community service **CO4 [K4]:**examine the necessity of professional skills & community-orientedservices for a holistic development **CO5 [K6]:**create awareness on human rights, legal rights, First Aid, Physical
SEMESTER- V			
24.	21UBYC51	Core Course – IX: Taxonomy Of Angiosperms	**CO1[K1]:** identify the morphological key characters of Angiosperms. **CO2[K2]:** explain the economic importance of Angiosperm families **CO3[K4]:** classify the Angiosperms based on the morphology characters. **CO4[K5]:** justify the new plant species. **CO5[K6]:** prepare the herbarium and key for Angiosperm families.
25.	21UBYC52	Core Course – X: Plant Physiology And Biochemistry	**CO1[K1]:** describe the physiological relationship of soil and water. **CO2[K2]:** express the knowledge of C3 and C4 cycle pathway **CO3[K3]**:utilize the knowledge of enzyme mechanism and protein classification **CO4[K4]**: compare the photosynthesis and respiration process. **CO5[K5]**: justify the biochemical importance and regulation.

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26.	21UBYC5P	Core Course – XI: Practical: Taxonomy of Angiosperms	**CO1[K1]:** identify the morphological key characters of Angiosperms. **CO2[K2]:** explain the economic importance of angiosperm families **CO3[K3]:** draw the floral diagram of given plants. **CO4[K4]:** dissect the floral parts for identification purpose. **CO5[K6]:** prepare the herbarium and key for Angiosperm families.
27.	21UBYC5Q	Core Course – XII: Practical: Plant Physiology and Biochemistry	**CO1[K2]:** explain the photosynthetic mechanism and related events of plants. **CO2[K3]:** perform tests to identify the microbes **CO3[K4]:** analyse the biochemical components of any plant samples. **CO4[K4]:** resolve methods to isolate N2 fixing organisms **CO5[K5]:** justify the various growth promoting substances and their action.
28.	21UBYO51	Elective Course – I: Reproductive Biology of Angiosperms	**CO1[K1]:** define the reproductive biology of Angiosperms **CO2[K2]:** explain the pollen viability and pollen fertility **CO3[K3]:** utilize the floral parts for reproduction **CO4[K4]:** examine the pollination biology of Angiosperm plants **CO5[K4]:** classify the breeding system of plants.
29.	21UBYO52	Elective Course – I: Recent Trends in Plant Systematics	**CO1[K1]:** define the evolution of Angiosperms **CO2[K2]:** explain the plant systematic and classification **CO3[K3]:** compute the phylogenetic relationship among the plant groups **CO4[K4]:** analyse the botanical nomenclature **CO5[K4]:** inspect the taxonomic evidence

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30.	21UBYO53	Elective Course – I: Emerging Molecular Techniques	**CO1[K1]:** define the molecular techniques **CO2[K2]:** demonstrate the chromatographic techniques **CO3[K3]:** perform the electrophoresis **CO4[K4]:** analyse DNA sequence by using PCR techniques **CO5[K4]:** examine the genome sequence
31.	21UBYO54	Elective Course – II: Economic Botany	**CO1[K1]:** identify the core concepts and basic principles of economic botany andtheir importance. **CO2[K2]:** explain the relationship between human and plants. **CO3[K3]:** perform various methods of plant cultivation. **CO4[K4]:** analyse the economic important plants and their uses. **CO5[K4]:** classify the economic importance & medicinal applications of selected plants
32.	21UBYO55	Elective Course – II: Plant Resources and Utilization	**CO1[K1]:** list the important medicinal plants **CO2[K2]:** illustrate the characteristic features of the medicinal plants **CO3[K3]:** organize the latex, fibres, timber, beverages, resin & gums yielding plants **CO4[K4]:** inspect the production of biodiesel from plant **CO5[K4]:** separate the oil, fibres, cotton and jute from the economic important plants

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33.	21UBYO56	Elective Course – II: Prospective of Medicinal Plants	**CO1[K1]:**identify the medicinal plants and describe its external morphology **CO2[K2]:** demonstrate the process and storage of medicinal plants **CO3[K3]:** perform various medical practices in ethno botany **CO4[K4]:** classify the Indian system of medicine and commercialization of products **CO5[K4]:** inspect the conservation process of medicinal plants
34.	21UBYS51	Skill Enhancement Course – V: Bioinstrumentation and Biostatistics	**CO1[K1]:** define the principles microtome and spectrophotometer **CO2[K2]:** compare the different biomolecules using instruments **CO3[K3]:** acquire the knowledge of biomolecules **CO4[K4]:** ensure the methods mounding media and slide preparations **CO5[K5]:** knowledge of data collection and Biostatistics methods
35.	21UBYJ51	Internship	**CO1[K2]:** demonstrate depth of expertise in coherent area of Biology **CO2[K3]:** employ technical information using scientific communications, scientific operations and procedures **CO3[K3]:** develop effective oral and written communication skills in the field of Biological science **CO4[K6]:** develop hands on training experience and skill in Botany **CO5[K6]**: create awareness on logistic and economic and realities of functioning in a work environment
SEMESTER- VI			

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36.	21UBYC61	Core Course – XIII: Plant Ecology and Phytogeography	**CO1[K2]**: explain the basics of ecology, ecosystem, vegetation & phytogeography **CO2[K3]**: utilize the knowledge on function of ecosystem, plant succession and biogeochemical cycle of elements **CO3[K4]**: examine the morphological adaptation of plants & primary production of an ecosystem **CO4[K4]**: analyse the different groups of plants and their adaptations **CO5[K5]**: evaluate the phytoremediation and distribution and succession of plants in an ecosystem
37.	21UBYC62	Core Course – XIV: Cell and Molecular Biology	**CO1[K1]:** state the basics of Prokaryotic and Eukaryotic cell **CO2[K2]:** explain the cytoplasmic organelles by their structure and functions **CO3[K3]:** discover the cellular functions **CO4[K4]:** analyse the molecules for different biological functions **CO5[K4]:** examine the DNA damage and repair mechanism
38.	21UBYC63	Core Course – Xv: Genetics and Plant Breeding	**CO1[K1]:** define the principles and concepts of Mendelian laws **CO2[K2]:** explain the gene inheritance **CO3[K3]:** use the knowledge of plant breeding methods **CO4[K4]:** examine the genetic basis of heterosis technique **CO5[K5]:** evaluate the concept of plant genetic resources, gene bank and gene pool.

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39.	21UBYC6P	Core Course – Xvi: Practical: Plant Ecology and Phytogeography	**CO1[K2]**: demonstrate the basics of ecosystem, vegetation and phytogeography **CO2[K3]**: calculate the availability of vegetation and soil nutrients in given area **CO3[K4]**: compare the local vegetation with soil nutrients **CO4[K5]**: measure the morphological and physiological adaptation of vegetation in relation with various habitats **CO5[K5]**: evaluate the adaptation of plants, availability of soil in given area
40.	21UBYC6Q	Core Course – Xvii: Practical: Cell and Molecular Biology and Genetics	**CO1[K2]:** infer the cell components and observation of cell organelles **CO2[K3]:** demonstrate the different stages of mitosis and meiosis cell division **CO3[K4]:** compare the sequence of plant gDNA& bacterial plasmid &gDNA **CO4[K5]:** resolve the problems related to Genetics. **CO5[K5]:** justify the Hardy Weinberg equilibrium.

S.No.	Course Code	Course Name	Course Outcomes
41.	21UBYO61	Major Elective Course – III: Biodiversity and Conservation	**CO1[K1]:** state the vegetation and their relationship with the ecosystem **CO2[K2]:** classify the environmental biology in ecosystem **CO3[K3]:** develop the indigenous knowledge, biopiracy and bio prospecting **CO4[K4]:** analyze the cause and consequences of loss of biodiversity, threats and conservations. **CO5[K4]:** simplify the *In situ* conservation and *ex situ* conservation
42.	21UBYO62	Elective Course – III: Forest Botany	**CO1[K1]**: define the types of forest & their importance and silvicultural practices. **CO2[K2]**: classify the knowledge on forestry, silviculture and forest conservation **CO3[K3]**: articulate the types of Indian forest, utilization and conservation of forest biodiversity by using silvicultural practice and forest policies **CO4[K4]**: analyse the forest climate, impact of deforestation, silviculture management and forest resource **CO5[K4]**: inspect the recent scenario in forest biodiversity, wildlife wealth of India, silviculture practice and forest act of India.

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43.	21UBYO63	Elective Course – III: Recent Advances In Botany	**CO1[K1]:** state the advances in Botany **CO2[K2]:** explain the plant genomics **CO3[K3]:** employ the bioinformatics and computational biology **CO4[K4]:** analyzephytocomponents and nanoparticles in plants **CO5[K4]:** simplify the pharmacology
44.	21UBYS61	Skill Enhancement Course – VI: Techniques In Plant Biotechnology	**CO1[K1]:** recognize the molecular biology of plasmid and plant genome **CO2[K2]:** interpret the genetically modified DNA and gene transfer method **CO3[K3]:** utilize the application of genetically modified plants **CO4[K4]:** compare the tissue culture using different growth hormones **CO5[K4]:** inspect the tissue culture media and culturing of organs through micropropagation