

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN (AUTONOMOUS), SIVAKASI – 626 123.

(Affiliated to Madurai Kamaraj University, Re-accredited with A Grade by NAAC, College with Potential for Excellence by UGC and Mentor Institution under UGC PARAMARSH) DEPARTMENT OF BOTANY

UG DEGREE PROGRAMME IN BOTANY

PROGRAMME EDUCATIONAL OBJECTIVES

The Graduates will

PEO1.	be a productive employee in herbal industries, botanical gardens, educational
	institutions or pursue higher studies.
PEO2.	create novel ideas to solve economic, social and environmental issues related to
	Botany with ethics.
PEO3.	be competent to handle a demanding situation and involve in the collection and
	preparation of specimens to aspire as a successful entrepreneur.

PROGRAMME SPECIFIC OUTCOMES

By the Completion of B.Sc. Botany programme, the learners will be able to

PSO1.	apply their botanical knowledge to identify and compare the fundamental features and processes of different groups of plants.
PSO2.	critically think and apply the understanding of the subject of plant sciences in identifying the problems which can be solved through the use of plants.
PSO3.	evaluate and apply the skills in Botany with the understanding of general laboratory practices.
PSO4.	articulate effectively with the use of digital resources to explain the concepts related to life sciences.
PSO5.	exhibit their caliber to work efficiently as a member /leader in teams, preferably in a multi-disciplinary setting.
PSO6.	reflect the environmental values and uses of plants and be aware of environmental implications.
PSO7.	engage in sustainable utilization of plants, land, water, forest and energy resources.

COURSE OUTCOME

Core Course		
Course Code: BDBT11		Course Title:PLANT DIVERSITY I
On successful completion of the course, the learners should be able to		
CO1[K2]	illustrate the general characters, classification and economic importance of lower plants.	
CO2[K2]	explain the structure and reproduction of lower plants.	
CO3[K4]	distinguish the thallus structure and reproduction in lichens.	
CO4[K4]	analyze the features and multiplication of non-vascular cryptogams.	
CO5[K5]	justify the economic importance of	lower plants.

Core Course		
Course Code: BDBT12		Course Title: CELL BIOLOGY
On successful completion of the course, the learners should be able to		
CO1[K2]	explain the structure, types and significance of genetic materials in the cell.	
CO2[K2]	summarize the structure, functions of different cell organelles and microscopic techniques.	
CO3[K3]	make use of the microscopic techniques to identify microscopic structures.	
CO4[K4]	analyze the process of divisions of cell and its impact.	
CO5[K5]	assess the role of different cells an	d organelles

	Allied Course			
Course Code:	BDBT1A	Course Title: ANIMAL BIOTECHNOLOGY I		
On successful	completion of the course, the learne	ers should be able to		
CO1[K2]	demonstrate the techniques pertaining to animal cell culture			
CO2[K3]	demonstrate the methods of transgenesis.			
CO3[K4]	unravel the information pertain animals with ethical issues.	ing to transgenesis and to relate transgenic		
CO4[K5]	design and evaluate the technique lines.	ues for development and maintenance of cell		
CO5[K6]	develop animal cell culture produc	cts.		
	Value Adde	ed Course		
Course Code:1	Value Adde	ed Course Course Title:ENVIRONMENTAL STUDIES		
Course Code:I	Value Adde 3DES11	ed Course Course Title:ENVIRONMENTAL STUDIES		
Course Code:I On successful	Value Adde 3DES11 completion of the course, the learned	ed Course Course Title:ENVIRONMENTAL STUDIES ers should be able to		
Course Code:I On successful CO1[K2]	Value Adde BDES11 completion of the course, the learned recognize the importance of environmed protection.	ed Course Course Title:ENVIRONMENTAL STUDIES ers should be able to ent and role of individual in its		
Course Code:I On successful CO1[K2] CO2[K2]	Value Adde BDES11 completion of the course, the learned recognize the importance of environmental protection. represent the primary environmental protection	ed Course Course Title:ENVIRONMENTAL STUDIES ers should be able to ent and role of individual in its roblems and its potential solutions.		
Course Code:I On successful CO1[K2] CO2[K2] CO3[K3]	Value Adde BDES11 completion of the course, the learned recognize the importance of environmental protection. represent the primary environmental protection. utilize the methods for the sustainable protection.	ed Course Course Title:ENVIRONMENTAL STUDIES ers should be able to ent and role of individual in its roblems and its potential solutions. use of natural resources.		
Course Code:I On successful CO1[K2] CO2[K2] CO3[K3] CO4[K4]	Value Adde 3DES11 completion of the course, the learned recognize the importance of environmental protection. represent the primary environmental protection. utilize the methods for the sustainable organize an action plan for sustainable humanist and social perspectives.	ed Course Course Title:ENVIRONMENTAL STUDIES ers should be able to ent and role of individual in its roblems and its potential solutions. use of natural resources. alternatives that integrate science,		

Value Added Course		
Course Code:BDES11		Course Title:ENVIRONMENTAL STUDIES
On successful completion of the course, the learners should be able to		
CO1[K2]	recognize the importance of environment and role of individual in its protection.	
CO2[K2]	represent the primary environmental problems and its potential solutions.	
CO3[K3]	utilize the methods for the sustainable use of natural resources.	
CO4[K4]	organize an action plan for sustainable alternatives that integrate science, humanist and social perspectives.	
CO5[K4]	compare the structure and functions o interactions.	f ecosystems in the context of human environmental

Course Code:BDB	T21	Course Title:PLANT DIVERSITY II
On successful com	pletion of the course, the learne	
	protion of the course, the realite	ers should be able to
CO1[K2] trac	trace the evidences for the existence of life on earth.	
CO2[K2] illu	strate about the vascular crypto	ogams and gymnosperms.
CO3[K4] ana	analyse the features of pteridophytes.	
CO4[K4] exa	examine the features of gymnosperms.	
CO5[K5] jus	tify the economic importance a	nd angiospermic characters of gymnosperms.

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Core Course		
Course Code:BDBT2L Course Title:- PRACTI		Course Title:- PRACTICAL I
On successful completion of the course, the learners should be able to		
CO1[K2]	demonstrate the preparation of who	le mount.
CO2[K3]	find out the internal and external structural organization among various groups of plants.	
CO3[K4]	examine the anatomy of plant materials.	
CO4[K4]	examine the process of cell division in plants.	
CO5[K5]	Assesssuitable technique for the stu	dy of internal structure of a plant part.

	Allied	Course	
Course Code:BDBT2A Course Title:ANIMAL BIOTECHNOLOGY II			
On success	ful completion of the course, the learn	ers should be able to	
CO1[K2]	classify and characterize the methods of gene therapy.		
CO2[K3]	demonstrate hybridoma technology along with its therapeutic and diagnostic applications.		
CO3[K4]	analyze the concepts of Human Gen	ome Project	
CO4[K5]	evaluate the basics of IVF Technolo	gy in man and cattle.	
CO5[K6]	elaborate stem cell biology and to co	ompile its biomedical applications.	
Course Co	de:BDBT2AL	Course Title: ALLIED PRACTICAL	
On success	ful completion of the course, the learn	ers should be able to	
	estimate the microbial load and their	estimate the microbial load and their sensitivity to antibiotics.	
CO1[K2]	demonstrate animal cell culture trials.		
CO1[K2] CO2[K2]	demonstrate animal cell culture trial	ls.	
CO1[K2] CO2[K2] CO3[K3]	demonstrate animal cell culture tria prepare animal cell culture products.	ls.	
CO1[K2] CO2[K2] CO3[K3] CO4[K3]	demonstrate animal cell culture tria prepare animal cell culture products. handle equipments.	ls.	
CO1[K2] CO2[K2] CO3[K3] CO4[K3] CO5[K6]	demonstrate animal cell culture tria prepare animal cell culture products. handle equipments. design the animal cell culture labora	ls. tory and adopt biosafety practices.	

Allied Course			
Course Code:BDBT2AL		Course Title: ALLIED PRACTICAL	
On successful completion of the course, the learners should be able to			
CO1[K2]	estimate the microbial load and their	sensitivity to antibiotics.	
CO2[K2]	demonstrate animal cell culture trials	demonstrate animal cell culture trials.	
CO3[K3]	prepare animal cell culture products.		
CO4[K3]	handle equipments.		
CO5[K6]	design the animal cell culture laborate	ory and adopt biosafety practices.	

Value Added Course		
Course Co	ode:BDVG21	Course Title:VALUE EDUCATION & GENDER STUDIES
n success	sful completion of the course, the learne	rs should be able to
D1[K1]	recall the basic concepts of various categories of value education and gender studies.	
J2[K2]	outline the principles of personal, family, professional and societal values.	
3[K2]	explain strategies that can attain ethic gender equality.	al-moral values, gender variations and
4[K4]	examine the multifaceted dimensions moral values and ethics.	of women's role in the society with
	analyze the elements of gender studies associated with values for peaceful and	
5[K4]	Skill Based	Course Course Title:INTRODUCTION TO
[K4]	Skill Based	Course Course Title:INTRODUCTION TO COMPUTERS & MS OFFICE
urse Co	Skill Based ode:BDCL23	Course Course Course Title:INTRODUCTION TO COMPUTERS & MS OFFICE rs should be able to
urse Co success 1[K2]	Skill Based ode:BDCL23 sful completion of the course, the learne explain the components of computer a	Course Course Course Title:INTRODUCTION TO COMPUTERS & MS OFFICE rs should be able to and basics of office automation software
urse Co success 1[K2] 2[K2]	analyze the elements of gender studie contented life. Skill Based ode:BDCL23 sful completion of the course, the learne explain the components of computer a summarize the features of windows of summarize the features of w	Course Course Title:INTRODUCTION TO COMPUTERS & MS OFFICE rs should be able to and basics of office automation software perating system and PC software.
urse Co success 1[K2] 2[K2] 3[K2]	analyze the elements of gender studie contented life. Skill Based ode:BDCL23 sful completion of the course, the learne explain the components of computer a summarize the features of windows of demonstrate the working of windows	Course Course Title:INTRODUCTION TO COMPUTERS & MS OFFICE rs should be able to and basics of office automation software perating system and PC software. operating system.
D5[K4] Durse Co 1 success D1[K2] D2[K2] D3[K2] D4[K3]	Skill Based Ode:BDCL23 Sful completion of the course, the learned explain the components of computer a summarize the features of windows of demonstrate the working of windows utilize the word features for documen	Course Course Title:INTRODUCTION TO COMPUTERS & MS OFFICE rs should be able to and basics of office automation software perating system and PC software. operating system. t creation.

Skill Based Course		
Course Code:BDCL23		Course Title:INTRODUCTION TO COMPUTERS & MS OFFICE
On successful completion of the course, the learners should be able to		
CO1[K2]	explain the components of computer and basics of office automation software.	
CO2[K2]	summarize the features of windows operating system and PC software.	
CO3[K2]	demonstrate the working of windows operating system.	
CO4[K3]	utilize the word features for document creation.	
CO5[K4]	analyze the commands for simple vis	ual presentations.

Part V			
ourse Co	de:BDSA2	Course Title:SOCIAL AWARENESS PROGRAMME & PHYSICAL EDUCATION	
n success	ful completion of the course, the learne	rs should be able to	
O1[K3]	identify their interest, leadership skills and undertake challenges.		
O2[K3]	adapt to work in team and communicate effectively with the society.		
D3[K3]	instill a sense of responsibility on env Nature.	ironmental issues and conservation of	
D4[K6]	develop the habit of creating awarene	ss on health for society.	
05[K6]	build up a positive image of women with self-confidence and self-awareness		
	Core Co	ourse	
ourse Co	Core Co de:BDBT31	ourse Course Title:PLANT ANATOMY AND	
ourse Co	Core Co de:BDBT31	Durse Course Title:PLANT ANATOMY AND EMBRYOLOGY rs should be able to	
ourse Co n success 01[K2]	Core Co de:BDBT31 ful completion of the course, the learne summarize about various tissues and	Durse Course Title:PLANT ANATOMY AND EMBRYOLOGY rs should be able to reproductive systems in plants.	
ourse Co n success D1[K2] D2[K2]	Core Co de:BDBT31 ful completion of the course, the learne summarize about various tissues and discuss about the anatomy of different	Durse Course Title:PLANT ANATOMY AND EMBRYOLOGY rs should be able to reproductive systems in plants. It parts of a plant.	
Course Co On success O1[K2] O2[K2] O3[K4]	Core Co de:BDBT31 ful completion of the course, the learne summarize about various tissues and discuss about the anatomy of different analyze the process of normal and and	Durse Course Title:PLANT ANATOMY AND EMBRYOLOGY rs should be able to reproductive systems in plants. nt parts of a plant. omalous secondary growth in plants.	
Course Co on success O1[K2] O2[K2] O3[K4] O4[K4]	Core Co Core Co de:BDBT31 de:BDBT31 ful completion of the course, the learne summarize about various tissues and a discuss about the anatomy of different analyze the process of normal and and comprehend the process of fertilization comprehend the process of fertilization	Durse Course Title:PLANT ANATOMY AND EMBRYOLOGY rs should be able to reproductive systems in plants. nt parts of a plant. Durse o	

Core Course			
Course Coo	de:BDBT31	Course Title:PLANT ANATOMY AND EMBRYOLOGY	
On successf	On successful completion of the course, the learners should be able to		
CO1[K2]	summarize about various tissues and	reproductive systems in plants.	
CO2[K2]	discuss about the anatomy of differen	nt parts of a plant.	
CO3[K4]	analyze the process of normal and and	omalous secondary growth in plants.	
CO4[K4]	comprehend the process of fertilization	on and post fertilization in angiosperms.	
CO5[K5]	assess the role of various tissue system	ns and the process of fertilization.	

Course Code:BDBT32 Course Title:GENETICS AND EVOLUTION On successful completion of the course, the learners should be able to Interaction and mutation in plants. C01[K2] relate the process of inheritance, genic interaction and mutation. Interaction and mutation. C02[K2] outline the concepts of biostatistics, origin of life and evolution. Interaction and mutation. C03[K3] solve problems using statistical tools. Interpret the role of genes, mutagenic effects and evolutionary mechanism C05[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism Course Course for biostatistres Course Course for Boottand deviation of Mendelian ratios. Course Title:FUNDAMENTALS OF CHEMISTRY Course Course for Boottand deviation of the course, the learners should be able to Course Course of the course, the learners should	Core Course			
On successful completion of the course, the learners should be able to CO1[K2] relate the process of inheritance, genic interaction and mutation in plants. CO2[K2] outline the concepts of biostatistics, origin of life and evolution. CO3[K3] solve problems using statistical tools. CO4[K4] analyse about modification and deviation of Mendelian ratios. CO4[K4] interpret the role of genes, mutagenic effects and evolutionary mechanism CO5[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism Course Code:BDCH3A Course Title:FUNDAMENTALS OF CHEMISTRY N successful completion of the course, the learners should be able to Sol[K2] Summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. Sol[K3] Co2[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. CO3[K3] explain the importance and structure of carbohydrates and vitamins.	Course Cod	e:BDBT32	Course Title: GENETICS AND EVOLUTION	
X01[K2] relate the process of inheritance, genic interaction and mutation in plants. X02[K2] outline the concepts of biostatistics, origin of life and evolution. X03[K3] solve problems using statistical tools. X04[K4] analyse about modification and deviation of Mendelian ratios. X05[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism X05[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism X05[K5] Course Code:BDCH3A X05[K2] Summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. X05[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. X02[K3] explain the importance and structure of carbohydrates and vitamins.	On successfu	Il completion of the course, the learne	ers should be able to	
CO2[K2] outline the concepts of biostatistics, origin of life and evolution. CO3[K3] solve problems using statistical tools. CO4[K4] analyse about modification and deviation of Mendelian ratios. CO5[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism Course Code:BDCH3A Course Code:BDCH3A Course Title:FUNDAMENTALS OF CHEMISTRY Consuccessful completion of the course, the learners should be able to summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. CO2[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. CO3[K3] explain the importance and structure of carbohydrates and vitamins.	CO1[K2]	relate the process of inheritance, get	nic interaction and mutation in plants.	
CO3[K3] solve problems using statistical tools. CO4[K4] analyse about modification and deviation of Mendelian ratios. CO5[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism (Allied course for Botany students) Course Code:BDCH3A Course Title:FUNDAMENTALS OF CHEMISTRY Dn successful completion of the course, the learners should be able to CO1[K2] summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. CO2[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. CO3[K3] explain the importance and structure of carbohydrates and vitamins.	CO2[K2]	outline the concepts of biostatistics, origin of life and evolution.		
CO4[K4] analyse about modification and deviation of Mendelian ratios. CO5[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism (Allied course for Botany students) Course Code:BDCH3A Course Code:BDCH3A Course Title:FUNDAMENTALS OF CHEMISTRY On successful completion of the course, the learners should be able to CO1[K2] summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. CO2[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. CO3[K3] explain the importance and structure of carbohydrates and vitamins.	CO3[K3]	solve problems using statistical tool	S.	
CO5[K5] interpret the role of genes, mutagenic effects and evolutionary mechanism (Allied course for Botany students) Course Code:BDCH3A Course Title:FUNDAMENTALS OF CHEMISTRY On successful completion of the course, the learners should be able to Course colspan="2">Course colspan="2">Course the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. Co2[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. CO3[K3] explain the importance and structure of carbohydrates and vitamins.	CO4[K4]	analyse about modification and devi	iation of Mendelian ratios.	
(Allied course for Botany students) Course Code:BDCH3A Course Title:FUNDAMENTALS OF CHEMISTRY On successful completion of the course, the learners should be able to Course Title:FUNDAMENTALS OF CHEMISTRY On successful completion of the course, the learners should be able to Course Title:FUNDAMENTALS OF CHEMISTRY CO1[K2] summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. CO2[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. CO3[K3] explain the importance and structure of carbohydrates and vitamins.	CO5[K5]	interpret the role of genes, mutagen	ic effects and evolutionary mechanism	
On successful completion of the course, the learners should be able to CO1[K2] summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent. CO2[K3] classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides. CO3[K3] explain the importance and structure of carbohydrates and vitamins.			CHEMISTRY	
CO1[K2]summarize the chemistry of vitamins, carbohydrates, fertilizers, insecticides and pesticides, oils, fats, soaps and detergent.CO2[K3]classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides.CO3[K3]explain the importance and structure of carbohydrates and vitamins.	In successfu	Il completion of the course, the learne	ers should be able to	
CO2[K3]classify different types of vitamins carbohydrates, fertilizers, pesticides and insecticides.CO3[K3]explain the importance and structure of carbohydrates and vitamins.	CO1[K2]	summarize the chemistry of vitamin and pesticides, oils, fats, soaps and	as, carbohydrates, fertilizers, insecticides detergent.	
CO3[K3] explain the importance and structure of carbohydrates and vitamins.	2021821	classify different types of vitamins of insecticides.	carbohydrates, fertilizers, pesticides and	
	.02[K3]	explain the importance and structure of carbohydrates and vitamins.		
CO4[K4] illustrate the principles and manufacturing process of, fertilizers, oils, fats	CO3[K3]	explain the importance and structure	e of carbonydrates and vitamins.	
CO5[K5] discuss the applications of essentiality of vitamins, pesticides, insecticides and fertilizer in biological system.	CO3[K3]	explain the importance and structure illustrate the principles and manufac	cturing process of, fertilizers, oils, fats	
	CO3[K3] CO4[K4] CO5[K5]	explain the importance and structure illustrate the principles and manufact discuss the applications of essential fertilizer in biological system.	cturing process of, fertilizers, oils, fats ity of vitamins, pesticides, insecticides and	

(Allied course for Botany students)		
Course Code	e:BDCH3A	Course Title: FUNDAMENTALS OF CHEMISTRY
On successful completion of the course, the learners should be able to		
CO1[K2]	summarize the chemistry of vitamir and pesticides, oils, fats, soaps and	is, carbohydrates, fertilizers, insecticides detergent.
CO2[K3]	classify different types of vitamins of insecticides.	carbohydrates, fertilizers, pesticides and
CO3[K3]	explain the importance and structure	e of carbohydrates and vitamins.
CO4[K4]	illustrate the principles and manufac	cturing process of, fertilizers, oils, fats
CO5[K5]	discuss the applications of essential fertilizer in biological system.	ity of vitamins, pesticides, insecticides and

Core Course			
Course Code:BDBT41 Course Title:BIOCHEMISTRY		Course Title:BIOCHEMISTRY	
On successful completion of the course, the learners should be able to			
CO1[K2]	outline the structure of atoms, molecules and nature of different chemical bonds.		
CO2[K2]	describe about various biomolecules	S.	
CO3[K3]	identify the various biomolecules based on their nature and properties.		
CO4[K4]	analyzethe properties and functions	of enzymes.	
CO5[K5]	evaluate the role and significance of	biomolecules in living system.	

Core Course			
Course Code:BDBT41 Course Title:BIOCHEMISTRY			
On successful completion of the course, the learners should be able to			
CO1[K2]	outline the structure of atoms, mole	cules and nature of different chemical bonds.	
CO2[K2]	describe about various biomolecules.		
CO3[K3]	identify the various biomolecules ba	ased on their nature and properties.	
CO4[K4]	analyzethe properties and functions	of enzymes.	
CO5[K5]	evaluate the role and significance of	f biomolecules in living system.	
	Core C	ourse	
Course Coc	Core Core Core Core Core Core Core Core	ourse Course Title:PRACTICAL II	
Course Coc On successf	Core Core Core Core Core Core Core Core	ourse Course Title:PRACTICAL II ers should be able to	
Course Cod On successf CO1[K2]	Core Core Core Core Core Core Core Core	ourse Course Title:PRACTICAL II ers should be able to grains and genetic problems.	
Course Cod On successf CO1[K2] CO2[K2]	Core Core Core Core Core Core Core Core	ourse Course Title:PRACTICAL II ers should be able to grains and genetic problems. ts of a plant.	
Course Cod On successf CO1[K2] CO2[K2] CO3[K3]	Core Core Core Core Core Core Core Core	ourse Course Title:PRACTICAL II ers should be able to grains and genetic problems. ts of a plant. ues to quantity the biomolecules.	
Course Cod On successf CO1[K2] CO2[K2] CO3[K3] CO4[K3]	Core Core Core Core Core Core Core Core	ourse Course Title:PRACTICAL II ers should be able to grains and genetic problems. ts of a plant. ues to quantity the biomolecules. embryo and endosperm.	

ALLIED COURSE			
Course Code:BDCH4A		Course Title: PHYSICAL AND INDUSTRIAL CHEMISTRY	
On successful completion of the course, the learners should be able to			
CO1[K2]	acquire the basic idea on photochem amino acids, proteins, nucleic acids,	nistry, nuclear chemistry, water technology, silicones and bioinorganic compounds.	
CO2[K3]	outline the photophysical process, for acids, proteins, nucleic acids and bio	uels, silicones, water treatment, amino pinorganic compounds.	
CO3[K3]	classify the hardness of water, amin the different concepts in photochem chemistry.	o acids proteins nucleic acids and compare istry, nuclear chemistry, and bioinorganic	
CO4[K4]	illustrate the biological importance	of nucleic acids and proteins.	
CO5[K5]	discuss the structure and uses of am	ino acids, proteins and metal complexes.	

ALLIED PRACTICAL

Course Co	de:BDCH4AL	Course Title: VOLUMETRIC ESTIMATION
On successful completion of the course, the learners should be able to		
CO1[K2]	summarise the procedure for differe	nt types of volumetric analysis.
CO2[K3]	apply the law of volumetric analysis for determining the strength of analyte.	
CO3[K3]	apply the knowledge on concentration analyte present in the whole of the g	on units to calculate the amount of given solution.
CO4[K4]	demonstrate the analysis of hardness of water.	
CO5[K5]	follow the laboratory safety measure other chemicals, record note books manipulation and copying.	es and ethics to use acids, bases and and avoid malpractices, data

Skill Based Courses Discipline Specific Course				
Course Code:BDBT4DSL		Course Title: TECHNIQUES IN BIOSCIENCES PRACTICAL		
On successful completion of the course, the learners should be able to				
CO1[K2]	illustrate the separation of pigments	and aminoacids by chromatography.		
CO2[K2]	find out the pH value of different sa	mple.		
CO3[K3]	identify the pigments using TLC.			
CO4[K3]	make use of the biochemical technic	ques to detect complementary color.		
CO5[K4]	analyze the quality of water samples	S.		

Course Code:BDBT4DSL Course Title:TECHNIQUES IN BIOSCIENCI PRACTICAL On successful completion of the course, the learners should be able to CO1[K2] illustrate the separation of pigments and aminoacids by chromatography. CO2[K2] find out the pH value of different sample. CO3[K3] identify the pigments using TLC. CO4[K3] make use of the biochemical techniques to detect complementary color. CO5[K4] analyze the quality of water samples.	Skill Based Courses Discipline Specific Course		
On successful completion of the course, the learners should be able toCO1[K2]illustrate the separation of pigments and aminoacids by chromatography.CO2[K2]find out the pH value of different sample.CO3[K3]identify the pigments using TLC.CO4[K3]make use of the biochemical techniques to detect complementary color.CO5[K4]analyze the quality of water samples.	Course Co	ode:BDBT4DSL	Course Title: TECHNIQUES IN BIOSCIENCES PRACTICAL
CO1[K2]illustrate the separation of pigments and aminoacids by chromatography.CO2[K2]find out the pH value of different sample.CO3[K3]identify the pigments using TLC.CO4[K3]make use of the biochemical techniques to detect complementary color.CO5[K4]analyze the quality of water samples.	On success	sful completion of the course, the learn	ers should be able to
CO2[K2]find out the pH value of different sample.CO3[K3]identify the pigments using TLC.CO4[K3]make use of the biochemical techniques to detect complementary color.CO5[K4]analyze the quality of water samples.	CO1[K2]	illustrate the separation of pigments	and aminoacids by chromatography.
CO3[K3]identify the pigments using TLC.CO4[K3]make use of the biochemical techniques to detect complementary color.CO5[K4]analyze the quality of water samples.	CO2[K2]	find out the pH value of different sample.	
CO4[K3]make use of the biochemical techniques to detect complementary color.CO5[K4]analyze the quality of water samples.	CO3[K3]	identify the pigments using TLC.	
CO5[K4] analyze the quality of water samples.	CO4[K3]	make use of the biochemical techniq	ues to detect complementary color.
	CO5[K4]	analyze the quality of water samples	
Course Code:BDBT51 Course Title:TAXONOMY OF ANGIOSPEI		Core C	Course
On successful completion of the course, the learners should be able to	Course Co	Core C ode:BDBT51	Course
CO1[K2] explain the morphology and taxonomy of angiosperms.	Course Co On success	Core C ode:BDBT51	Course Course Title:TAXONOMY OF ANGIOSPERM ers should be able to
	Course Co On success CO1[K2]	Core C ode:BDBT51 sful completion of the course, the learn explain the morphology and taxonon	Course Course Title:TAXONOMY OF ANGIOSPERM ers should be able to ny of angiosperms.
CO2[K2] summarize the importance of economic produces.	Course Co On success CO1[K2] CO2[K2]	Core C ode:BDBT51 sful completion of the course, the learn explain the morphology and taxonon summarize the importance of econor	Course Course Title:TAXONOMY OF ANGIOSPERM ers should be able to ny of angiosperms. mic produces.
CO2[K2]summarize the importance of economic produces.CO3[K3]identify the key characters of different angiospermic families	Course Co On success CO1[K2] CO2[K2] CO3[K3]	Core C ode:BDBT51 Sful completion of the course, the learner explain the morphology and taxonom summarize the importance of econor identify the key characters of differe	Course Course Course Title:TAXONOMY OF ANGIOSPERM ers should be able to ny of angiosperms. mic produces. nt angiospermic families
CO2[K2]summarize the importance of economic produces.CO3[K3]identify the key characters of different angiospermic familiesCO4[K4]analyse and compare the vegetative and floral characters of angiospermic families	Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4]	Core C ode:BDBT51 sful completion of the course, the learned explain the morphology and taxonon summarize the importance of econor identify the key characters of different analyse and compare the vegetative a	Course Course Course Title:TAXONOMY OF ANGIOSPERM ers should be able to ny of angiosperms. mic produces. nt angiospermic families and floral characters of angiospermic families.
CO2[K2]summarize the importance of economic produces.CO3[K3]identify the key characters of different angiospermic families	Course Co On success CO1[K2] CO2[K2] CO3[K3]	Core C ode:BDBT51 Sful completion of the course, the learned explain the morphology and taxonon summarize the importance of econor identify the key characters of differe	Course Course Course Title:TAXONOMY OF ANGIOSPERM ers should be able to ny of angiosperms. mic produces. nt angiospermic families
CO2[K2]summarize the importance of economic produces.CO3[K3]identify the key characters of different angiospermic familiesCO4[K4]analyse and compare the vegetative and floral characters of angiospermic families	Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4]	Core C ode:BDBT51 sful completion of the course, the learn explain the morphology and taxonon summarize the importance of econor identify the key characters of differe analyse and compare the vegetative a	Course Course Course Title:TAXONOMY OF ANGIOSPERM ers should be able to ny of angiosperms. mic produces. nt angiospermic families and floral characters of angiospermic families.

Core Course		
Course C	ode:BDBT5L	Course Title:- PRACTICAL III
On succes	sful completion of the course, the learne	rs should be able to
CO1[K2]	explain the morphological features of an angiosperm in technical terms.	
CO2[K2]	demonstrate the botanical name and family of an angiosperm.	
CO3[K3]	make use of herbarium technique and prepare herbarium.	
CO4[K4]	analyse the various plant propagation techniques.	
CO5[K6]	create bouquet and arrange flowers in	different patterns.
Course Co	Core Co ode:BDBT5V	ourse Course Title: INTERNSHIP/ON-THE-JOB
Course Co	Core Co ode:BDBT5V	ourse Course Title: INTERNSHIP/ON-THE-JOB TRAINING
Course Co	Core Co ode:BDBT5V	Durse Course Title: INTERNSHIP/ON-THE-JOB TRAINING rs should be able to
Course Con succes	Core Co ode:BDBT5V sful completion of the course, the learne relate the class room theory with wo	Durse Course Title: INTERNSHIP/ON-THE-JOB TRAINING rs should be able to ork place practice
Course Co On succes CO1[K2] CO2[K3]	Core Co ode:BDBT5V sful completion of the course, the learne relate the class room theory with wo apply the practices / procedures obset	Durse Course Title: INTERNSHIP/ON-THE-JOB TRAINING rs should be able to ork place practice erved in real time working environment
Course Co On succes CO1[K2] CO2[K3] CO3[K4]	Core Core ode:BDBT5V sful completion of the course, the learne relate the class room theory with wo apply the practices / procedures obsec analyse the workflow and community	Durse Course Title: INTERNSHIP/ON-THE-JOB TRAINING rs should be able to ork place practice erved in real time working environment cation flow prevailing in theInstitution/industr
Course Co On succes CO1[K2] CO2[K3] CO3[K4] CO4[K5]	Core Colore ode:BDBT5V Sful completion of the course, the learne relate the class room theory with wo apply the practices / procedures obse analyse the workflow and communit assess interests and abilities in their	Durse Course Title: INTERNSHIP/ON-THE-JOB TRAINING rs should be able to ork place practice erved in real time working environment cation flow prevailing in theInstitution/industree r field of study

Core Course			
Course Code:BDBT5V		Course Title: INTERNSHIP/ON-THE-JOB TRAINING	
On successfu	l completion of the course, the learne	rs should be able to	
CO1[K2]	relate the class room theory with wo	ork place practice	
CO2[K3]	apply the practices / procedures obs	erved in real time working environment	
CO3[K4]	analyse the workflow and communi	cation flow prevailing in theInstitution/industry	
CO4[K5]	assess interests and abilities in their	field of study	
CO5[K6]	propose strategies, policies and guid industrial/institutional operations	lelines for enhancing efficiency of	

	Major Electi	ve Course
Course Code	e:BDBT5E1	Course Title:HORTICULTURE AND FORESTRY
On successfu	l completion of the course, the learne	rs should be able to
CO1[K2]	explain the various propagation tech	nniques used in horticulture.
CO2[K2]	summarize the importance of forestr	ry.
CO3[K3]	identify the commercial importance	e of horticulture and its division.
CO4[K4]	analyse the various gardening and in	rigation techniques.
CO5[K6]	design the living environment aesthe	etically with gardening and forestry.

	Major Elec	tive Course
Course Co	ode:BDBT5E1	Course Title:HORTICULTURE AND FORESTRY
On success	sful completion of the course, the learn	ners should be able to
CO1[K2]	explain the various propagation te	chniques used in horticulture.
CO2[K2]	summarize the importance of fore	stry.
CO3[K3]	identify the commercial importan	ce of horticulture and its division.
CO4[K4]	analyse the various gardening and	irrigation techniques.
CO5[K6]	design the living environment aest	hetically with gardening and forestry.
Course Co	Major Elec ode:BDBT5E2	tive Course Course Title:NATURAL RESOURCES
Course Co	Major Elec 0de:BDBT5E2	tive Course Course Title:NATURAL RESOURCES
Course Co	Major Elec ode:BDBT5E2	tive Course Course Title:NATURAL RESOURCES ners should be able to
Course Co On success CO1[K2]	Major Electron ode:BDBT5E2 sful completion of the course, the learn summarize the types of water resource	tive Course Course Title:NATURAL RESOURCES ners should be able to rces.
Course Co On success CO1[K2] CO2[K2]	Major Electron ode:BDBT5E2 sful completion of the course, the learn summarize the types of water resourd outline the uses, exploitation and courd	tive Course Course Title:NATURAL RESOURCES ners should be able to rces. nservation of mineral resources.
Course Co On success CO1[K2] CO2[K2] CO3[K4]	Major Electron ode:BDBT5E2 sful completion of the course, the learn summarize the types of water resourd outline the uses, exploitation and courd analyze about the conventional and	tive Course Course Title:NATURAL RESOURCES erres should be able to erces. nservation of mineral resources. non conventional energy resources.
Course Co On success CO1[K2] CO2[K2] CO3[K4] CO4[K5]	Major Election ode:BDBT5E2 sful completion of the course, the learn summarize the types of water resourd outline the uses, exploitation and courd analyze about the conventional and explain the biomass and bioconverse	tive Course Course Title:NATURAL RESOURCES erres should be able to erres. nservation of mineral resources. non conventional energy resources. ion technology.
Course Co On success CO1[K2] CO2[K2] CO3[K4] CO4[K5] CO5[K6]	Major Election ode:BDBT5E2 sful completion of the course, the learn summarize the types of water resourd outline the uses, exploitation and completion and	tive Course Course Title:NATURAL RESOURCES hers should be able to rces. nservation of mineral resources. ion conventional energy resources. ion technology. ion of water resources.
Course Co On success CO1[K2] CO2[K2] CO3[K4] CO4[K5] CO5[K6]	Major Election ode:BDBT5E2 aful completion of the course, the learn summarize the types of water resourd outline the uses, exploitation and courd analyze about the conventional and explain the biomass and bioconverse elaborate the usage and over utilization	tive Course Course Title:NATURAL RESOURCES errs should be able to erres. nservation of mineral resources. ion conventional energy resources. ion technology. ion of water resources.

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t at		Course Cod On successf CO1[K2] CO2[K2] CO3[K3] CO4[K4] CO5[K5]	1
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	Major Elect	ive Course
ourse Co	de:BDBT5E3	Course Title:MICROBIOLOGY AND PLANT PATHOLOGY
n success	ful completion of the course, the learn	ers should be able to
O1[K2]	explain the biology of microbes and	diseases caused by them.
O2[K2]	trace the ways to identify microbes a	and its elimination.
O3[K3]	identify plant diseases and their reme	ediation.
O4[K4]	examine the characteristics and multiplication of microbes.	
O5[K5]	interpret the microbiology of water a Major Elect	ive Course
O5[K5] ourse Co	interpret the microbiology of water a Major Elect de:BDBT5E4	ive Course Course Title:HERBAL MEDICINE
O5[K5] Course Co	interpret the microbiology of water a Major Elect de:BDBT5E4 ful completion of the course, the learne	ive Course Course Title:HERBAL MEDICINE ers should be able to
O5[K5] Course Co On success: O1[K2]	interpret the microbiology of water a Major Elect de:BDBT5E4 ful completion of the course, the learned summarize the medicinal plants and mode of usage	ive Course Course Title:HERBAL MEDICINE ers should be able to their cultivation process, active principles and
O5[K5] Course Co On success: O1[K2] O2[K2]	interpret the microbiology of water a Major Elect de:BDBT5E4 ful completion of the course, the learned summarize the medicinal plants and mode of usage discuss about the drugs obtained from	ive Course ive Course Course Title:HERBAL MEDICINE ers should be able to their cultivation process, active principles and n leaves.
O5[K5] Course Co On success: O1[K2] O2[K2] O3[K3]	interpret the microbiology of water a Major Elect de:BDBT5E4 ful completion of the course, the learned summarize the medicinal plants and mode of usage discuss about the drugs obtained from the identify the drugs obtained from the	ive Course ive Course Course Title:HERBAL MEDICINE ers should be able to their cultivation process, active principles and n leaves. flowers, fruits and seed.
O5[K5] Course Co On success: O1[K2] O2[K2] O3[K3] O4[K4]	interpret the microbiology of water a Major Elect Major Elect de:BDBT5E4 ful completion of the course, the learned summarize the medicinal plants and mode of usage discuss about the drugs obtained from identify the drugs obtained from the examine the usage of drugs obtained	ive Course ive Course Course Title:HERBAL MEDICINE ers should be able to their cultivation process, active principles and n leaves. flowers, fruits and seed. from the stem and bark.

	Major Electiv	e Course
Course Co	de:BDBT5E4	Course Title:HERBAL MEDICINE
On successf	ful completion of the course, the learners	s should be able to
CO1[K2]	summarize the medicinal plants and the mode of usage	eir cultivation process, active principles and
CO2[K2]	discuss about the drugs obtained from	leaves.
CO3[K3]	identify the drugs obtained from the fl	owers, fruits and seed.
CO4[K4]	examine the usage of drugs obtained fr	om the stem and bark.
CO5[K5]	evaluate the uses of drugs obtained from	m plant parts.

	Skill Based	Courses
ourse C	ode:BDCG51	Course Title:CAREER GUIDANCE
n succes	sful completion of the course, the learner	rs should be able to
O1[K1]	recall the basic concepts about history	, culture of India and languages.
CO2[K2]	summarize the various events related to national movement.	to Indian economy and Indian
O3[K2]	explain the multi - dimensional aspect	s of science.
O4[K3]	apply the mathematical knowledge to	solve different problems.
O5[K5]	analyze the problems related to menta	l ability and reasoning power.
course Co	Core Co ode:BDBT61	urse Course Title:PLANT PHYSIOLOGY
Course Co	Core Co ode:BDBT61 sful completion of the course, the learner	urse Course Title:PLANT PHYSIOLOGY s should be able to
Course Co On succes	Core Co ode:BDBT61 sful completion of the course, the learner illustrate various physiological proces	urse Course Title:PLANT PHYSIOLOGY s should be able to sses in plants.
Course Co On succes XO1[K2] XO2[K2]	Core Co ode:BDBT61 sful completion of the course, the learner illustrate various physiological proces summarize the water relation in plant	urse Course Title:PLANT PHYSIOLOGY rs should be able to sses in plants. s.
Course Co On succes XO1[K2] XO2[K2] XO3[K3]	Core Co ode:BDBT61 sful completion of the course, the learner illustrate various physiological proces summarize the water relation in plant identify the role of plant growth regul	urse Course Title:PLANT PHYSIOLOGY rs should be able to sses in plants. s. lators.
Course Co On succes CO1[K2] CO2[K2] CO3[K3] CO4[K4]	Core Co ode:BDBT61 sful completion of the course, the learner illustrate various physiological proces summarize the water relation in plant identify the role of plant growth regul comment on plant metabolic pathways	urse Course Title:PLANT PHYSIOLOGY rs should be able to rs sin plants. s. lators. s.
ourse C n succes D1[K2] D2[K2] D3[K3] D4[K4] D5[K5]	Core Co ode:BDBT61 sful completion of the course, the learner illustrate various physiological proces summarize the water relation in plant identify the role of plant growth regul comment on plant metabolic pathways assess the importance of physiological	urse Course Title:PLANT PHYSIOLOGY rs should be able to rs should be able to sses in plants. s. lators. s. l process and phytohormones
Course Consucces 201[K2] 202[K2] 203[K3] 204[K4] 205[K5]	Core Co ode:BDBT61 sful completion of the course, the learner illustrate various physiological proces summarize the water relation in plant identify the role of plant growth regul comment on plant metabolic pathways assess the importance of physiological	urse Course Title:PLANT PHYSIOLOGY rs should be able to rs should be able to sses in plants. s. lators. s. I process and phytohormones
ourse C n succes 01[K2] 02[K2] 03[K3] 04[K4] 05[K5]	Core Co ode:BDBT61 sful completion of the course, the learner illustrate various physiological proces summarize the water relation in plant identify the role of plant growth regul comment on plant metabolic pathways assess the importance of physiological	urse Course Title:PLANT PHYSIOLOGY rs should be able to rs should be able to sses in plants. s. lators. 3. I process and phytohormones

	Core Cor	ırse
Course Co	de:BDBT61	Course Title:PLANT PHYSIOLOGY
On successf	ful completion of the course, the learners	s should be able to
CO1[K2]	illustrate various physiological proces	ses in plants.
CO2[K2]	summarize the water relation in plants	
CO3[K3]	identify the role of plant growth regula	ators.
CO4[K4]	comment on plant metabolic pathways	
CO5[K5]	assess the importance of physiological	process and phytohormones

	Core Co	ourse
ourse Cod	e:BDBT62	Course Title:PLANT BIOTECHNOLOGY
n successfu	al completion of the course, the learne	rs should be able to
O1[K2]	summarize gene manipulation techn	iques and its applications.
CO2[K2]	illustrate about plant tissue culture,	fermentation technology and biofertilizers
CO3[K3]	utilize the techniques of plant tissue	e culture and genetic engineering.
CO4[K4]	infer about the blotting techniques a	and fermentation products.
CO5[K5]	evaluate the role of microbes in ferm	nentation and agriculture.
Course Cod	Core Co	Ourse Title PRACTICAL IV
Course Cod	Core Co	ourse Course Title:PRACTICAL IV
C ourse Cod)n successfu	Core Core Core Core Core Core Core Core	Course Title:PRACTICAL IV rs should be able to
C ourse Cod On successfu CO1[K2]	Core Core Core Core Core Core Core Core	Course Title:PRACTICAL IV rs should be able to bibition rate and stomatal index.
Course Cod On successfu CO1[K2] CO2[K3]	Core Co e:BDBT6L1 al completion of the course, the learne estimate the chlorophyll content, im calculate the effect of biofertilizers	Course Title:PRACTICAL IV rs should be able to bibition rate and stomatal index. on plant growth.
Course Cod On successfu CO1[K2] CO2[K3] CO3[K3]	Core Co e:BDBT6L1 al completion of the course, the learne estimate the chlorophyll content, im calculate the effect of biofertilizers demonstrate the process of <i>invitro</i> re	Durse Course Title:PRACTICAL IV rs should be able to bibition rate and stomatal index. on plant growth. egeneration of plants.
Course Cod On successfu CO1[K2] CO2[K3] CO3[K3] CO4[K4]	Core Co e:BDBT6L1 al completion of the course, the learne estimate the chlorophyll content, im calculate the effect of biofertilizers demonstrate the process of <i>invitro</i> re analyse the effect of temperature and	Durse Course Title:PRACTICAL IV rs should be able to bibition rate and stomatal index. on plant growth. egeneration of plants. d alcohol in permeability of cell.

	Core Co	ourse
Course Code	e:BDBT6L1	Course Title:PRACTICAL IV
On successfu	l completion of the course, the learne	rs should be able to
CO1[K2]	estimate the chlorophyll content, im	bibition rate and stomatal index.
CO2[K3]	calculate the effect of biofertilizers	on plant growth.
CO3[K3]	demonstrate the process of invitro re	egeneration of plants.
CO4[K4]	analyse the effect of temperature an	d alcohol in permeability of cell.
CO5[K5]	evaluate the rate of photosynthesis u	under various conditions

	Core	Course
Course Co	ode:BDBT6L2	Course Title:PRACTICAL V
On success	sful completion of the course, the learn	ners should be able to
CO1[K2]	explain the anatomy of various grou	ups of plants and its importance.
CO2[K3]	demonstrate the preparation, sterili	zation and culturing of microbes.
CO3[K3]	identify the group of microorganisn	ns based on immune techniques.
CO4[K4]	analyse the importance of medicina	l plants.
CO5[K5]	assess the importance of microbes a	and its interactions.
	Elective	e Course
Course Co	ode:BDBT6E1	
		Course Title: ECOLOGY AND BIODIVERSITY
On success	sful completion of the course, the learn	ners should be able to
On success CO1[K2]	sful completion of the course, the learn explain the basics of ecology and eco	ners should be able to
On success CO1[K2] CO2[K2]	sful completion of the course, the learn explain the basics of ecology and eco summarize about bioconversion and	course Title:ECOLOGY AND BIODIVERSITY ners should be able to osystem. biodiversity.
On success CO1[K2] CO2[K2] CO3[K4]	sful completion of the course, the learn explain the basics of ecology and eco summarize about bioconversion and analyse different groups of plants and	Course Title:ECOLOGY AND BIODIVERSITY ners should be able to osystem. biodiversity. d their adaptations.
On success CO1[K2] CO2[K2] CO3[K4] CO4[K4]	sful completion of the course, the learn explain the basics of ecology and eco summarize about bioconversion and analyse different groups of plants and comment oncycling of minerals and	Course Title:ECOLOGY AND BIODIVERSITY ners should be able to osystem. biodiversity. d their adaptations. water.

	Elective	Course
Course Co	ode:BDBT6E1	Course Title: ECOLOGY AND BIODIVERSITY
On succes	sful completion of the course, the learn	ners should be able to
CO1[K2]	explain the basics of ecology and eco	system.
CO2[K2]	summarize about bioconversion and l	piodiversity.
CO3[K4]	analyse different groups of plants and	their adaptations.
CO4[K4]	comment oncycling of minerals and v	vater.
CO5[K6]	discuss on major environmental pollu	tions.

	Major Electiv	e Course
Course Co	ode:BDBT6E2	Course Title:IMMUNOLOGY
On success	ful completion of the course, the learner	should be able to
CO1[K2]	discuss the types and elements involve	d in immunology.
CO2[K2]	explain the various genes involved in i	nmunology.
CO3[K3]	identify immunodeficiency diseases an	d their remediation.
CO4[K4]	analyze the mechanism of immunity.	
CO5[K5]	evaluate the various immunization pra-	ctices involved in immunology.
Course Co	ALLIED CC ode:BDBT3A	URSE Course Title:FUNDAMENTALS OF
Course Co	ALLIED CC ode:BDBT3A	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY
Course Co On success	ALLIED CO ode:BDBT3A	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY
Course Co On success CO1[K2]	ALLIED CO ode:BDBT3A ful completion of the course, the learner illustrate the structure of atoms, bondin	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY a should be able to ag types, buffer and enzyme action.
Course Co On success CO1[K2] CO2[K2]	ALLIED CO Dede:BDBT3A iful completion of the course, the learner illustrate the structure of atoms, bondin summarize about biomolecules and bio	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY a should be able to ag types, buffer and enzyme action. techniques.
Course Co On success CO1[K2] CO2[K2] CO3[K3]	ALLIED CO ode:BDBT3A oful completion of the course, the learner illustrate the structure of atoms, bondin summarize about biomolecules and bio make use of different techniques relate	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY a should be able to ag types, buffer and enzyme action. techniques. d to biochemistry.
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4]	ALLIED CO ode:BDBT3A oful completion of the course, the learner illustrate the structure of atoms, bondin summarize about biomolecules and bio make use of different techniques relate categorize the structure and functions of	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY a should be able to ag types, buffer and enzyme action. techniques. d to biochemistry. of biomolecules.
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4] CO5[K5]	ALLIED CO ode:BDBT3A iful completion of the course, the learner illustrate the structure of atoms, bondin summarize about biomolecules and bio make use of different techniques relate categorize the structure and functions of evaluate the role of biomolecules in live	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY a should be able to ag types, buffer and enzyme action. techniques. d to biochemistry. of biomolecules. ing systems.
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4] CO5[K5]	ALLIED CO ode:BDBT3A oful completion of the course, the learner illustrate the structure of atoms, bondin summarize about biomolecules and bio make use of different techniques relate categorize the structure and functions of evaluate the role of biomolecules in live	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY a should be able to ag types, buffer and enzyme action. techniques. d to biochemistry. f biomolecules. ing systems.
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4] CO5[K5]	ALLIED CO ode:BDBT3A oful completion of the course, the learner illustrate the structure of atoms, bondin summarize about biomolecules and bio make use of different techniques relate categorize the structure and functions of evaluate the role of biomolecules in live	URSE Course Title:FUNDAMENTALS OF BIOCHEMISTRY a should be able to ag types, buffer and enzyme action. techniques. d to biochemistry. of biomolecules. ing systems.

ALLIED COURSE		
Course Code:BDBT3A		Course Title: FUNDAMENTALS OF BIOCHEMISTRY
On successful completion of the course, the learners should be able to		
CO1[K2]	illustrate the structure of atoms, bonding types, buffer and enzyme action.	
CO2[K2]	summarize about biomolecules and biotechniques.	
CO3[K3]	make use of different techniques related to biochemistry.	
CO4[K4]	categorize the structure and functions of biomolecules.	
CO5[K5]	evaluate the role of biomolecules in living systems.	

Allied Course		
Course Code:BDBT4A Course Title: MICROBIOL BIOTECHNOLOGY		Course Title: MICROBIOLOGY AND BIOTECHNOLOGY
On successful completion of the course, the learners should be able to		
CO1[K2]	explain the biology of microbes and diseases caused by them.	
CO2[K2]	explain the concepts and applications of genetic engineering and plant tissue culture.	
CO3[K3]	utilize the novel techniques for the welfare of society.	
CO4[K4]	analyze the involvement of microbes in agriculture and industry.	
CO5[K5]	O5[K5] detect the role of microbiology and biotechnology in day today life.	

Allied Course		
Course Code:BDBT4AL		Course Title: ALLIED PRACTICAL
On successful completion of the course, the learners should be able to		
CO1[K2]	demonstrate bacterial culture techniques.	
CO2[K3]	identify the group of microorganisms based on staining.	
CO3[K3]	make use of various equipments to achieve sterilization techniques.	
CO4[K4]	analyse the biomolecules using analytical techniques.	
CO5[K5] deduct the various biomolecules		

Non Major Elective Course		
Course Code:BDBT4N Course Title:FRESHWATER AQUACULTURE		
On succes	ssful completion of the course, th	e learners should be able to
CO1[K2]	outline nutrient management strategies and to summarize predators, weeds and common diseases which occur in fish culture practices.	
CO2[K3]	construct and preparefish culture ponds	
CO3[K3]	manage soil and water quality parameters.	
CO4[K4]	categorize the various types of freshwater aquaculture, cultivable species of carps and culture practices	
	culture practices. adapt fishing crafts to harvest and evolve methodology to preserve thefishes by realizing the scope and need for aquaculture practices.	
CO5[K6]	realizing the scope and need for Non Ma	and evolve methodology to preserve themsnes by or aquaculture practices. ajor Elective Course Course Title:SERICULTURE
CO5[K6]	Non Ma	and evolve methodology to preserve themsnes by or aquaculture practices. ajor Elective Course Course Title:SERICULTURE
CO5[K6] Course C On succes	Non Ma Code:BDBT5N	and evolve methodology to preserve themsnes by or aquaculture practices. ajor Elective Course Course Title:SERICULTURE e learners should be able to
CO5[K6] Course C On succes CO1[K2]	adapt fishing clarts to harvest realizing the scope and need for Non Ma Code:BDBT5N ssful completion of the course, the classify the races and biology of diseases in silkworm	and evolve methodology to preserve themsnes by or aquaculture practices. ajor Elective Course Course Title:SERICULTURE e learners should be able to of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm of silkworm and to summarize the causes symptoms of silkworm and to summarize the cause symptoms of silkworm and to summarize the cause symptoms of silkworm and to symptoms of silkworm and to summarize the cause symptoms of silkworm and to summarize the cause symptoms of silkworm and symptoms of si
CO5[K6] Course C On succes CO1[K2] CO2[K2]	adapt fishing clarts to harvest realizing the scope and need for realizing the scope and need for Non Ma Code:BDBT5N ssful completion of the course, the classify the races and biology of diseases in silkworm illustrate the basic design of ree to be employed for rearing root	Ajor Elective Course Course Title:SERICULTURE e learners should be able to of silkworm and to summarize the causes symptoms of silkworm and to summarize the disinfecting strategies on and appliances
CO5[K6] Course C On succes CO1[K2] CO2[K2] CO3[K3]	Non Ma Code:BDBT5N ssful completion of the course, th classify the races and biology of diseases in silkworm illustrate the basic design of re to be employed for rearing root demonstrate the feeding freque environmental conditions for real	Ajor Elective Course Ajor Elective Course Course Title:SERICULTURE e learners should be able to of silkworm and to summarize the causes symptoms of silkworm and to evaluate the disinfecting strategies on and appliances ency of silkworm and to evaluate theoptimum earing and spinning
CO5[K6] Course C On succes CO1[K2] CO2[K2] CO3[K3] CO4[K4]	Non Ma Non Ma Code:BDBT5N ssful completion of the course, th classify the races and biology of diseases in silkworm illustrate the basic design of reto be employed for rearing root demonstrate the feeding freque environmental conditions for reanalyze mulberry plants.	Ajor Elective Course Course Title:SERICULTURE e learners should be able to of silkworm and to summarize the causes symptoms of silkworm and to evaluate the disinfecting strategies on and appliances ency of silkworm and to evaluate theoptimum earing and spinning

Non Major Elective Course		
Course Code:BDBT5N Course Title:SERICULTURE		Course Title:SERICULTURE
On successful completion of the course, the learners should be able to		
CO1[K2]	classify the races and biology of silkworm and to summarize the causes symptoms of diseases in silkworm	
CO2[K2]	illustrate the basic design of rearing house and demonstrate the disinfecting strategie to be employed for rearing room and appliances	
CO3[K3] demonstrate the feeding frequency of silkworm and to evaluate theoptimum environmental conditions for rearing and spinning		
CO4[K4]	[K4] analyze mulberrycultivation methods, the causes and symptoms of diseases in mulberry plants.	
CO5[K5]	explain the strategies pertaining to harvest, sort, store, preserve, reel and market the cocoons and to assess world silk production and Central Silk Board	

Course Code:BDSE68Course Title:HERBAL COSMOn successful completion of the course, the learners should be able toCO1[K2]summarize the knowledge on herbal cosmetics.CO2[K2]relate the importance of skin and hair maintenance.CO3[K3]make use of herbs for common ailments.CO4[K4]analyse the effects of natural and synthetic cosmetics.CO5[K6]compile the techniques of preservation and marketing of herbal product
n successful completion of the course, the learners should be able to D1[K2] summarize the knowledge on herbal cosmetics. D2[K2] relate the importance of skin and hair maintenance. D3[K3] make use of herbs for common ailments. D4[K4] analyse the effects of natural and synthetic cosmetics. D5[K6] compile the techniques of preservation and marketing of herbal product
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D5[K6] compile the techniques of preservation and marketing of herbal product
Self Employment Course Course Title:HERBAL COSM
PRACTICAL
successful completion of the course, the learners should be able to
relate the basic knowledge on natural products.
^{D2[K2]} recognize the basic medicinal herbs with scientific knowledge.
D3[K3] analyze the effects of synthetic cosmetics.
O4[K5] modify and preserve herbal cosmetics on their own.
O5[K6] inspect the ways to market their own herbal products.

Skill Based Courses Self Employment Course		
Course Code:BDSE68L		Course Title:HERBAL COSMETICS PRACTICAL
On successful completion of the course, the learners should be able to		
CO1[K2]	relate the basic knowledge on natural products.	
CO2[K2]	recognize the basic medicinal herbs with scientific knowledge.	
CO3[K3] analyze the effects of synthetic cosmetics.		
CO4[K5]	[K5] modify and preserve herbal cosmetics on their own.	
CO5[K6] inspect the ways to market their own herbal products.		



THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN (AUTONOMOUS) SIVAKASI – 626 123.

(Affiliated to Madurai Kamaraj University, Re-accredited with A Grade by NAAC, College with Potential for Excellence by UGC and Mentor Institution under UGC PARAMARSH)

DEPARTMENT OF BOTANY

PG DEGREE PROGRAMME IN BOTANY

PROGRAMME EDUCATIONAL OBJECTIVES

The Graduates will

PEO1.	exhibit a mastery of skills and knowledge with ethics at a level required for plant based industry or to be an eminent research scholar.
PEO2.	pursue research of significance in Botany or an interdisciplinary or creative project to solve the problems in thrust areas to preserve nature.
PEO3.	enhance the productivity of several economically important products/botanicals and thereby become a successful entrepreneur.

PROGRAMME SPECIFIC OUTCOMES		
By the Completion of M.Sc. Botany programme, the learners will be able to		
PSO1.	demonstrate a systematic, extensive and coherent knowledge of plant sciences and its application with the use of established theories, principles and concepts of Botany.	
PSO2.	apply their botanical knowledge and transferable skills to identify and analyze issues related to new/unfamiliar contexts and to solve it with well-defined solutions.	
PSO3	be competent on data collection and process of scientific documentation in areas	
1505.	related to specializations and current updates in the field of Botany.	
PSO4.	make use of appropriate techniques, skills and modern ICT tools necessary to decipher knowledge related to life sciences.	
PSO5	demonstrate leadership and team workmanship in order to serve efficiently in	
1505.	institution, industry and society.	
PSO6.	defend the environmental and professional issues with moral ethics.	
PSO7.	involve in life-long learning and to adapt to the technological advancements in the emerging areas of Botany.	

COURSE OUTCOME

Core Course		
Course Code: MDBT11		Course Title: PLANT DIVERSITY
On successful completion of the course, the learners should be able to		
CO1[K2]	illustrate about cryptogams and gymnosperms.	
CO2[K3]	identify the origin and development of plants	
CO3[K4]	correlate the features of various classes/ divisions of plant kingdom	
CO4[K4]	analyze the life cycle pattern exists in plants	
CO5[K5]	justify the Importance of plants in day-to-day life.	

Core Course		
Course Code: MDBT12		Course Title: PLANT ANATOMY AND MICROTECHNIQUES
On successful completion of the course, the learners should be able to		
CO1[K2]	summarize about the various tissue systems and microtechniques.	
CO2[K2]	illustrate about the anatomy of different parts of a plant.	
CO3[K3]	CO3[K3] identify the structure of different tissues using microtechniques	
CO4[K4]	analyze the process of normal and anomalous secondary growth in plants.	
CO5[K4]	CO5[K4] compare the anatomy of dendrochronology.	

Course Code:	: MDBT13	Course Title: PLANT SYSTEMATICS
On successful completion of the course, the learners should be able to		
CO1[K2]	explain the basic concepts, principles and tools used in the study of angiosperms.	
CO2[K2]	summarize the vegetative and floral characters of different angiosperms.	
CO3[K4]	distinguish different systems of classification and aids used in plant taxonomy.	
CO4[K4]	analyze and compare the characters of angiospermic families.	
CO5[K5]	justify the economic importance of angiosperms.	

Core Course		
Course Code: MDBT1L1 Course Title: PRACTICAL I		Course Title: PRACTICAL I
On successful completion of the course, the learners should be able to		
CO1[K2]	demonstrate the preparation of whole mount and sectioning of plant materials.	
CO2[K3]	identify various groups of plants based on their morphology and anatomical variations	
CO3[K3]	make use of maceration and microtechniques for the preparation of permanent and temporary slides.	
CO4[K4]	dissect out the anatomy of various plant parts.	
CO5[K4]	analyze the structure of cryptogams and phanerogams.	

Core Course		
Course Code:MDBT1L2 Course Title:PRACTICAL II		
On successful completion of the course, the learners should be able to		
CO1[K2]	describe the characters of an angiosperm in technical terms.	
CO2[K2]	identify the name and family of an angiosperm	
CO3[K3]	make use of herbarium technique and prepare herbarium	
CO4[K3]	solve taxonomical problems using the rules and recommendations of ICN.	
CO5[K6]	construct taxonomic keys.	

Elective Course I			
Course Co	Course Code:MDBT1E1 Course Title:EVOLUTION AND PALEOBOTANY		
On successful completion of the course, the learners should be able to			
CO1[K2]	summarize the concepts and various theories related to evolution		
CO2[K2]	trace the evidences of fossil cryptogams and gymnosperms.		
CO3[K3]	identify the various patterns of evolution		
CO4[K4]	inspect about population genetics, isolation and speciation.		
CO5[K5]	criticize the existence of life on earth with an aid of fossils		

Elective Course I		
Course Code: MDBT1E2 Course Title: HERBAL MEDICINE		
On successful completion of the course, the learners should be able to		
CO1[K2]	illustrate the basic principles and history of medicinal practices.	
CO2[K3]	apply various methods to cultivate herbs.	
CO3[K3]	identify the adulteration of drug and its evaluation through various test.	
CO4[K4]	analyse the importance of major herbs in day today life.	
CO5[K5]	conclude the collection, processing and storage of herbal drugs.	

Core Course		
Course Code:MDBT21 Course Title:INHERITANCE BIOLOGY		Course Title: INHERITANCE BIOLOGY
On successful completion of the course, the learners should be able to		
CO1[K2]	summarize the knowledge on laws of inheritance, genetic basis of loci and alleles	
CO2[K2]	relate about gene regulation in prokaryotes and eukaryotes.	
CO3[K4]	analyze the chromosome structure and genome organization	
CO4[K5]	interpret on non-allelic genic interactions and population genetics.	
CO5[K6]	discuss the effect of linkage and crossing over.	

Course Code:MDBT22 Course Title: MICROBIOLOGY		
On succes	sful completion of the course, the	e learners should be able to
CO1[K2]	explain the biology of microbes and diseases caused by them.	
CO2[K2]	Summarize the role of immune sys	stem.
CO3[K3]	identify the human microbial disea	ise
CO4[K4]	analyze the impact of microflora in	n soil, air and water
CO5[K5]	judge the role of microbes in he	alth and environment.
On succes	sful completion of the course, the	e learners should be able to
	elaborate the classification, prop	erties and metabolism of biomolecules.
CO2[K2]	describe the nomenclature, princ	iple and mechanism of enzyme action
CO3[K3]	identify the metabolism and sign	ificance of secondary metabolites
CO4[K4]	analyze the biosynthesis process	of various biomolecules.
	assess the deficiency of vitamins through symptoms	
CO5[K5]		
CO5[K5]		
CO5[K5]		

Core Course		
Course Code:MDBT23		Course Title: BIOCHEMISTRY
On successful completion of the course, the learners should be able to		
CO1[K2]	elaborate the classification, properties and metabolism of biomolecules.	
CO2[K2]	describe the nomenclature, principle and mechanism of enzyme action	
CO3[K3]	identify the metabolism and significance of secondary metabolites	
CO4[K4]	analyze the biosynthesis process of various biomolecules.	
CO5[K5]	assess the deficiency of vitamins through symptoms	

Core Course		
Course Code:MDBT2L1 Course Title: PRACTICAL III		
On successful completion of the course, the learners should be able to		
CO1[K2]	demonstrate the preparation, sterilization and culturing of microbes.	
CO2[K3]	solve genetic problems.	
CO3[K3]	identify the group of microorganisms based on staining.	
CO4[K4]	analyze the quality of water	
CO5[K5]	determine the role of several genes in inheritance.	

Core Course		
Course Co	Course Code: MDBT2L2 Course Title: PRACTICAL IV	
On successful completion of the course, the learners should be able to		
CO1[K2]	estimate the quantity of biomolecules in various biological samples.	
CO2[K3]	find out the different biomolecules present in biological samples	
CO3[K3]	apply the chromatographic techniques to separate the biomolecules.	
CO4[K4]	analyze the physiochemical nature of biomolecules.	
CO5[K5]	assess the presence of secondary metabolites.	

Core Course		
Course Code: MDBT31 Course Title: CELL AND MOLECULAR BIOLOGY		Course Title: CELL AND MOLECULAR BIOLOGY
On successful completion of the course, the learners should be able to		
CO1[K2]	elaborate the structure and functions of cell organelles.	
CO2[K2]	describe the methods of molecular biology adopted in biosciences.	
CO3[K4]	analyze about molecular markers	
CO4[K4]	infer about cell divisions and regulation of genes.	
CO5[K5]	justify the role and significance of cell organelles and cell mechanism.	

Core Course		
Course Code: MDBT32 Course Title:- PLANT EMBRYOLOGY AND TISSUE CULTURE		Course Title:- PLANT EMBRYOLOGY AND TISSUE CULTURE
On successful completion of the course, the learners should be able to		
CO1[K2]	illustrate the reproductive stages in angiosperms.	
CO2[K2]	summarize the basic principles and techniques involved in plant tissue culture.	
CO3[K3]	make use of <i>invitro</i> techniques to regenerate plants	
CO4[K4]	examine various stages lead to the development of a plant.	
CO5[K5]	criticize the importance of <i>invitro</i> regeneration and parthenocarpy.	

Core Course		
ode: MDBT33	Course Title: PLANT PHYSIOLOGY	
On successful completion of the course, the learners should be able to		
generalize the various physiological processes in plants		
identify the ways the overcome environmental stress for plants.		
O3[K4] analyze the plant metabolic pathways.		
comment on plant growth regulators.		
justify the importance of physiological processes and phytohormones.		
S	Core ode: MDBT33 ful completion of the course, the leas generalize the various physiological pro- identify the ways the overcome enviror analyze the plant metabolic pathways. comment on plant growth regulators. justify the importance of physiological	

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Core Course			
Course C	Course Code: MDBT3L1 Course Title: PRACTICAL V		
On successful completion of the course, the learners should be able to			
CO1[K2]	demonstrate the molecular techniques to identify nucleic acids		
CO2[K3]	identify the stages of cell division in pla	ants.	
CO3[K3]	make use of tissue culture technique to	isolate and grow the cells.	
CO4[K4]	analyze the stages of development of embryo		
CO5[K4]	examine pollen germination, embryo de	evelopment and endosperm.	

Core Course		
4] analyze the absorption spectrum of plant pigments.		

Elective Course III			
Course Co	Course Code: MDBT3E1 Course Title: RESEARCH METHODOLOGY		
On successful completion of the course, the learners should be able to			
CO1[K2]	illustrate the principle and working mechanism of various biological techniques		
CO2[K2]	express the views about research, IPF	R and ethics.	
CO3[K3]	CO3[K3] make use of the instruments and techniques for their research		
CO4[K4]	analyse the implication of various instruments and techniques.		
CO5[K6]	prepare and present their research work.		

Elective Course III			
Course Code:MDBT3E2 Course Title:ENERGY RESOURCES			
On successful completion of the course, the learners should be able to			
CO1[K2]	list out the energy requirement in relati	on to population and industrial growth.	
CO2[K2]	summarize the source and applications	of non-conventional energy resources	
CO3[K3]	make use of solar energy and solar gad	gets for thermal conversion	
CO4[K4]	conclude the basic components of wind forms.	energy generating system and management of wind	
CO5[K5]	assess the production and use of bioener	gy.	

Core Course			
Course Co	Course Code: MDBT41 Course Title: ENVIRONMENTAL BIOLOGY AN BIODIVERSITY		
On successful completion of the course, the learners should be able to			
CO1[K2]	summarize about the concepts of ecology and biodiversity.		
CO2[K2]	outline about phytogeography.		
CO3[K3]	O3[K3] Identify the methods of studying plant community and its conservation.		
CO4[K4]	analyze about community and population ecology.		
CO5[K6]	discuss on environmental pollution and disaster management		

Course C On succes CO1[K2] CO2[K3] CO3[K4]	ode:MDBT42 sful completion of the course, the lea explain the fundamentals and appli utilize the novel techniques to solve comment on the fundamentals of b	Course Title:APPLIED BIOTECHNOLOG arners should be able to cations of biotechnology e the current issues	
On succes CO1[K2] CO2[K3] CO3[K4]	sful completion of the course, the lease explain the fundamentals and appli utilize the novel techniques to solve comment on the fundamentals of b	arners should be able to cations of biotechnology e the current issues	
CO1[K2] CO2[K3] CO3[K4]	explain the fundamentals and appli utilize the novel techniques to solv comment on the fundamentals of b	cations of biotechnology e the current issues	
CO2[K3] CO3[K4]	utilize the novel techniques to solv comment on the fundamentals of b	e the current issues	
CO3[K4]	comment on the fundamentals of b	utilize the novel techniques to solve the current issues	
0040743	comment on the fundamentals of bioinformatics and bioethics.		
CO4[K4]	analyze the role of biotechnology in the production of commercial products.		
CO5[K5]	justify the applications of biotechnology.		
Course C	Cor ode: MDBT4L	e Course Course Title: PRACTICAL VII	
Course C	Cor ode: MDBT4L	e Course Course Title: PRACTICAL VII	
Course C	Cor ode: MDBT4L	e Course Course Title: PRACTICAL VII arners should be able to	
Course C On succes CO1[K2]	Cor ode: MDBT4L sful completion of the course, the lea identify the fundamental tools and g	e Course Course Title: PRACTICAL VII arners should be able to ene transfer methods	
Course C On succes CO1[K2] CO2[K3]	Cor ode: MDBT4L sful completion of the course, the lea identify the fundamental tools and go calculate the important value inde	e Course Course Title: PRACTICAL VII arners should be able to ene transfer methods X	
Course C On succes CO1[K2] CO2[K3] CO3[K4]	Cor ode: MDBT4L sful completion of the course, the lea identify the fundamental tools and ge calculate the important value inde analyze the nature of vegetation b	e Course Course Title: PRACTICAL VII arners should be able to ene transfer methods x y quadrat method.	
Course C On succes CO1[K2] CO2[K3] CO3[K4] CO4[K4]	Cor Dede: MDBT4L sful completion of the course, the lead identify the fundamental tools and generation calculate the important value inder analyze the nature of vegetation be examine the primary productivity	e Course Course Title: PRACTICAL VII Course Title: PRACTICAL VII arners should be able to ene transfer methods x y quadrat method. of plants.	

Core Course			
Course Co	Course Code: MDBT4L Course Title: PRACTICAL VII		
On successful completion of the course, the learners should be able to			
CO1[K2]	identify the fundamental tools and gene transfer methods		
CO2[K3]	calculate the important value index		
CO3[K4]	analyze the nature of vegetation by quadrat method.		
CO4[K4]	examine the primary productivity of plants.		
CO5[K6]	compare the protein and nucleotide	sequence in different plants.	

	Elective	e Course IV	
Course Co	de:MDBT4E1	Course Title: BIOPHYSICS AND BIOSTATISTICS	
On success	ful completion of the course, the lea	rners should be able to	
CO1[K2]	Summarize bioenergetics, photobiolo	gy and concepts of biostatistics.	
CO2[K2]	relate the knowledge on probability a	nd SPSS packages.	
CO3[K3]	compute the measures of central tendency and measures of dispersion		
CO4[K4]	analyze about correlation and regression		
CO5[K6]	demonstrate the hypothesis and test the	he significance	
	Elective	e Course IV	
	Elective	e Course IV	
Course Co	Elective de:MDBT4E2	e Course IV Course Title:MICROBIAL GENETICS	
Course Co On success	Elective de:MDBT4E2 ful completion of the course, the lea	e Course IV Course Title:MICROBIAL GENETICS rners should be able to	
Course Co On success CO1[K2]	Elective de:MDBT4E2 ful completion of the course, the lea Demonstrate the effect of mutation or	e Course IV Course Title:MICROBIAL GENETICS rners should be able to n gene function.	
Course Co On success CO1[K2] CO2[K2]	Elective de:MDBT4E2 ful completion of the course, the lea Demonstrate the effect of mutation of explain the chromosomal and extra cl	e Course IV Course Title:MICROBIAL GENETICS rners should be able to n gene function. hromosomal inheritance in yeast.	
Course Co On success CO1[K2] CO2[K2] CO3[K3]	Elective de:MDBT4E2 ful completion of the course, the lea Demonstrate the effect of mutation or explain the chromosomal and extra cl Identify the genetics of bacteria and b	e Course IV Course Title:MICROBIAL GENETICS rners should be able to n gene function. hromosomal inheritance in yeast. bacteria phages.	
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4]	Elective de:MDBT4E2 ful completion of the course, the lea Demonstrate the effect of mutation on explain the chromosomal and extra cl Identify the genetics of bacteria and b distinguish DNA and RNA virus gene	e Course IV Course Title:MICROBIAL GENETICS rners should be able to n gene function. hromosomal inheritance in yeast. bacteria phages. omes and its role in molecular genetics.	
Course Co On success	Elective de:MDBT4E2 ful completion of the course, the lea	Course IV Course Title:MICROBIAL GENETICS rners should be able to	
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4]	Elective Detective ode:MDBT4E2 ful completion of the course, the lea Demonstrate the effect of mutation of explain the chromosomal and extra cl Identify the genetics of bacteria and b distinguish DNA and RNA virus gene	e Course IV Course Title:MICROBIAL GENETICS rners should be able to n gene function. hromosomal inheritance in yeast. bacteria phages. omes and its role in molecular genetics.	
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4] CO5[K5]	Elective de:MDBT4E2 ful completion of the course, the lea Demonstrate the effect of mutation or explain the chromosomal and extra cl Identify the genetics of bacteria and b distinguish DNA and RNA virus gene assess the genetic recombination in T	e Course IV Course Title:MICROBIAL GENETICS rners should be able to n gene function. hromosomal inheritance in yeast. bacteria phages. omes and its role in molecular genetics. 4 phage.	
Course Co On success CO1[K2] CO2[K2] CO3[K3] CO4[K4] CO5[K5]	Elective de:MDBT4E2 ful completion of the course, the lea Demonstrate the effect of mutation of explain the chromosomal and extra cl Identify the genetics of bacteria and b distinguish DNA and RNA virus gene assess the genetic recombination in T	e Course IV Course Title:MICROBIAL GENETICS rners should be able to n gene function. hromosomal inheritance in yeast. bacteria phages. omes and its role in molecular genetics. 4 phage.	

Elective Course IV			
Course Co	Course Code:MDBT4E2 Course Title:MICROBIAL GENETICS		
On successful completion of the course, the learners should be able to			
CO1[K2]	Demonstrate the effect of mutation on gene function.		
CO2[K2]	explain the chromosomal and extra chromosomal inheritance in yeast.		
CO3[K3]	Identify the genetics of bacteria and bacteria phages.		
CO4[K4]	distinguish DNA and RNA virus genomes and its role in molecular genetics.		
CO5[K5]	[K5] assess the genetic recombination in T4 phage.		

Course Cittle: PROJECT AND VIVA VOCE On successitic completion of the course, the learners should be able to C01[K2] summarize the concept of research with etics C02[K3] make use of advanced tools in analyzing data. C03[K5] justify valuable solutions to the betterment of society. C04[K5] defend their research professionally. C05[K6] develop laboratory skills and master in advanced techniques. C05[K6] develop laboratory skills and master in advanced techniques. Elective Electi		Core	Course
On successful completion of the course, the learners should be able to C01[K2] summarize the concept of research with ethics C02[K3] make use of advanced tools in analyzing data. C03[K5] justify valuable solutions to the betterment of society. C04[K5] defend their research professionally. C05[K6] develop laboratory skills and master in advanced techniques. Elective Future II Course Title:PLANTS FOR HUMAN WELFAR On success// completion of the course, the learners should be able to Course Title:PLANTS FOR HUMAN WELFAR On success// completion of the course, the learners should be able to Course Course (I learner should be able to C01[K2] Illustrate the importance of plants in duary life. C02[K3] apply the cultivation methods for growing mushrooms. C03[K3] make use of horticultural techniques to promote aesthetic value C04[K4] Analyze the types of forest and their conservation. C05[K5] justify the role of plants for the welface	Course Co	ode:MDBT4P	Course Title: PROJECT AND VIVA VOCE
CO1[K2] summarize the concept of research with ethics CO2[K3] make use of advanced tools in analyzing data. CO3[K5] justify valuable solutions to the betterment of society. CO4[K5] defend their research professionally. CO5[K6] develop laboratory skills and master in advanced techniques. Elective Course II Course Course II Course Title:PLANTS FOR HUMAN WELFAF On success/II completion of the course, the learners should be able to CO1[K2] Illustrate the importance of plants in day today life. CO2[K3] apply the cultivation methods for growing mushrooms. CO3[K3] make use of horticultural techniques to promote aesthetic value CO4[K4] Analyze the types of forest and their conservation. CO5[K5] justify the role of plants for the welfare of human.	On success	sful completion of the course, the lea	rners should be able to
CO2[K3] make use of advanced tools in analyzing data. CO3[K5] justify valuable solutions to the betterment of society. CO4[K5] defend their research professionally. CO5[K6] develop laboratory skills and master in advanced techniques. Elective Course II Course Code:MDBT2E Course Title:PLANTS FOR HUMAN WELFAH On successful completion of the course, the learners should be able to CO1[K2] Illustrate the importance of plants in day today life. CO3[K3] apply the cultivation methods for growing mushrooms. CO3[K3] make use of horticultural techniques to promote aesthetic value CO4[K4] Analyze the types of forest and their conservation. CO5[K5] justify the role of plants for the welfare of human.	CO1[K2]	summarize the concept of research with	h ethics
CO3[K5] justify valuable solutions to the betterment of society. CO4[K5] defend their research professionally. CO5[K6] develop laboratory skills and master in advanced techniques. Elective Course II Course Course Title:PLANTS FOR HUMAN WELFAH On successful completion of the course, the learners should be able to CO1[K2] Illustrate the importance of plants in day today life. CO2[K3] apply the cultivation methods for growing mushrooms. CO3[K3] make use of horticultural techniques to promote aesthetic value CO4[K4] Analyze the types of forest and their conservation. CO5[K5] justify the role of plants for the welfare of human.	CO2[K3]	make use of advanced tools in analyzir	ng data.
CO4[K5] defend their research professionally. CO5[K6] develop laboratory skills and master in advanced techniques. Elective Course II Course Course II Course Course Title:PLANTS FOR HUMAN WELFAF On successful completion of the course, the learners should be able to C01[K2] Illustrate the importance of plants in day today life. C02[K3] apply the cultivation methods for growing mushrooms. C03[K3] make use of horticultural techniques to promote aesthetic value C04[K4] Analyze the types of forest and their conservation. C05[K5] justify the role of plants for the welfare of human.	CO3[K5]	justify valuable solutions to the bettern	nent of society.
CO5[K6] develop laboratory skills and master in advanced techniques. Elective Course II Course Course II Course Course Title:PLANTS FOR HUMAN WELFAF On successful completion of the course, the learners should be able to C01[K2] Illustrate the importance of plants in day today life. C02[K3] apply the cultivation methods for growing mushrooms. C03[K3] make use of horticultural techniques to promote aesthetic value C04[K4] Analyze the types of forest and their conservation. C05[K5] justify the role of plants for the welfare of human.	CO4[K5]	defend their research professionally.	
Elective Course II Course Code:MDBT2E Course Title:PLANTS FOR HUMAN WELFAF On successful completion of the course, the learners should be able to CO1[K2] Illustrate the importance of plants in day today life. C02[K3] apply the cultivation methods for growing mushrooms. CO3[K3] C04[K4] Analyze the types of forest and their conservation. C05[K5] justify the role of plants for the welfare of human.	CO5[K6]	develop laboratory skills and master in advanced techniques.	
On successful completion of the course, the learners should be able toCO1[K2]Illustrate the importance of plants in day today life.CO2[K3]apply the cultivation methods for growing mushrooms.CO3[K3]make use of horticultural techniques to promote aesthetic valueCO4[K4]Analyze the types of forest and their conservation.CO5[K5]justify the role of plants for the welfare of human.	Course Co	ode:MDBT2E	Course Title:PLANTS FOR HUMAN WELFAR
Course Course MDBT2E Course Title:PLANTS FOR HUMAN WELFAR On success/L completion of the course, the learners should be able to C01[K2] Illustrate the importance of plants in day today life. C02[K3] apply the cultivation methods for growing mushrooms. C03[K3] make use of horticultural techniques to promote aesthetic value C04[K4] Analyze the types of forest and their conservation. C05[K5] justify the role of plants for the welfare of human.		Elective	e Course II
On successful completion of the course, the learners should be able toCO1[K2]Illustrate the importance of plants in day today life.CO2[K3]apply the cultivation methods for growing mushrooms.CO3[K3]make use of horticultural techniques to promote aesthetic valueCO4[K4]Analyze the types of forest and their conservation.CO5[K5]justify the role of plants for the welfare of human.	Course Co	ode:MDBT2E	Course Title:PLANTS FOR HUMAN WELFAR
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CO2[K3]apply the cultivation methods for growing mushrooms.CO3[K3]make use of horticultural techniques to promote aesthetic valueCO4[K4]Analyze the types of forest and their conservation.CO5[K5]justify the role of plants for the welfare of human.	CO1[K2]	Illustrate the importance of plants in a	day today life.
CO3[K3]make use of horticultural techniques to promote aesthetic valueCO4[K4]Analyze the types of forest and their conservation.CO5[K5]justify the role of plants for the welfare of human.	CO2[K3]	apply the cultivation methods for gro	wing mushrooms.
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	CO5[K5]	justify the role of plants for the welfare of human.	

Elective Course II			
Course Co	Course Code:MDBT2E Course Title:PLANTS FOR HUMAN WELFAR		
On successful completion of the course, the learners should be able to			
CO1[K2]	Illustrate the importance of plants in day today life.		
CO2[K3]	apply the cultivation methods for grow	ing mushrooms.	
CO3[K3]	CO3[K3] make use of horticultural techniques to promote aesthetic value		
CO4[K4]	[K4] Analyze the types of forest and their conservation.		
CO5[K5]	CO5[K5] justify the role of plants for the welfare of human.		