

SRI KRISHNA ARTS AND SCIENCE COLLEGE

An Autonomous College, Affiliated to Bharathiar University
Coimbatore – 641 008, Tamil Nadu, India.

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)

B.Sc. BIOTECHNOLOGY (III to VI SEMESTER)

for 2022 - 23 admitted students

DEPARTMENT OF BIOSCIENCE



SRI KRISHNA ARTS AND SCIENCE COLLEGE
COIMBATORE – 641008

DEPARTMENT OF BIOTECHNOLOGY

(2022 - 2023)

I. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)	
PEO 1	Graduates will be equipped with skills and knowledge and get employment in Bio industries, Pharma Industry, Government departments by imparting the requisite technical skills.
PEO 2	Graduates will be able design, perform experiments, analyse and interpret data for investigating complex problems in biotechnology and related fields
PEO 3	Graduates will be motivated to pursue their higher studies and research in leading universities globally
PEO 4	Graduates will be able to design and innovate solution to Biotechnological problems by applying appropriate tools while keeping in mind safety and ethical factor for environmental and society.

II. PROGRAMME LEARNING OUTCOMES (PLOS)	
No	STATEMENT
PLO1	Knowledge: An ability to apply knowledge with facts and figures related to various subjects in pure sciences such as Cell biology, Biochemistry, Microbiology, Molecular biology, Bioinstrumentation, Biostatistics, etc. (Cognitive)
PLO2	Critical Thinking: To enable students to propose novel ideas in explaining facts and figures or providing new solution to the problems. (Cognitive)
PLO3	Practical Skills: An ability to acquire skills in handling scientific instruments, planning and performing in laboratory experiments to meet desired needs within realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability, and sustainability in Biotechnology. (Psychomotor Skills)
PLO4	Team Work Skills: An ability to work as a member of multidisciplinary teams and understand team members. (Affective)
PLO5	Communication Skills: Students will communicate scientific concepts, experimental results and analytical arguments clearly and concisely, both verbally and in writing. (Affective)
PLO6	Digital Skill: Serve as the Programmers, with sound knowledge of practical and theoretical concepts for developing molecular imaging. (Affective)
PLO7	Numeracy Skills: An ability to conduct experiments, as well as to analyze data with numeracy and statistical skills, understood the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life. (Cognitive)
PLO8	Leadership Skills: Ability to lead oneself and others in the achievement of organizational goals, contributing effectively to a team environment. (Affective)
PLO9	Life Long Learning: Interdisciplinary approach helps in providing better solutions and new ideas for the sustainable developments, recognition of the need for, and an ability to engage in life-long learning. (Affective)
PLO10	Entrepreneur Skills: Ability to develop different functional aspects of business world and convert the opportunities in establishing the Bio-business. (Affective)
PLO11	Ethics and Professionalism: Apply ethical Principles and Commit to professional ethics, responsibilities and norms of the biological sciences practice. (Affective)

III. PROGRAMME LEARNING OUTCOMES VS GRADUATE ATTRIBUTES VS TAXONOMY OF VERBS														
PLO	Graduate Attributes											Blooms		
	Knowledge	Critical Thinking	Practical Skills	Team work Skills	Communication Skills	Digital Skills	Numeracy Skills	Leadership skills	Lifelong Learning	Entrepreneurial Skills	Ethics & Professionalism	Cognitive	Psychomotor	Affective
1	✓											✓		
2		✓										✓		
3			✓										✓	
4				✓		✓								✓
5					✓	✓								✓
6						✓								✓
7							✓					✓		
8								✓			✓			✓
9									✓		✓			✓
10										✓	✓			✓
11											✓			✓

IV. PROGRAMME LEARNING OUTCOMES VS PROGRAMME EDUCATIONAL OBJECTIVES				
PLO	PEO 1	PEO 2	PEO 3	PEO 4
PLO 1	✓			
PLO 2	✓			
PLO 3	✓			✓
PLO 4		✓		
PLO 5			✓	
PLO 6			✓	✓
PLO 7			✓	
PLO 8		✓		
PLO 9			✓	✓
PLO 10		✓		✓
PLO 11		✓		✓

V. ADDITIONAL PROGRAMME OUTCOMES (APOs)	
APO 1	The students will have an ability in the social intelligence with (Social Intelligent Quotient and Emotional Quotient)
APO 2	The students will be trained in virtual collaborative ability to enhance learning retention and motivation and encourage knowledge sharing and support.
APO 3	They will have critical thinking and innovative skills to stay competitive in their future careers and excel beyond the content knowledge
APO 4	They will be provided with good digital foot print in the area of commerce and accounting in embarking lifelong learning techniques.

VI. PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Apply knowledge to find innovative solution for Biotechnological problems
PSO 2	Explore problems related to Biotechnology and provide valid solutions through industry – academic interface
PSO 3	Infer the potential and impact from Biotechnological innovations for finding sustainable solutions for issues pertaining to health and public health including pandemic, environment, waste management and agriculture
PSO 4	Graduates will have a scope of employment in (a) Food, Pharmaceutical, Bioprocessing, Bioinformatics

	(b) Allied industries as an analyst and manager in R and D and quality control Laboratories. (c) As an entrepreneur.
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VII. Curriculum Structure for B.Sc. Biotechnology

Course Components, Credits & Marks Distribution

Part No	Group	Basic Structure: Distribution of Courses	Number of Courses	Total Marks	Total Credits
I - IV	1	AEC – Ability Enhancement Courses	10	1000	31
III & IV	2	DSC – Discipline Specific Courses	18	1500	55
	3	DSE – Discipline Specific Electives	10	1000	38
	4	GEC – Generic Elective Courses	5	500	16
IV	5	ANCC I & II – Audit Non-Credit Courses	3	-	-
V		ANCC III – Audit Non-Credit Courses	1	Completed	
-	6	DTC – Drive Through Courses (SWAYAM - NPTEL, Coursera, any courses certified by statutory bodies, etc)	Any number	-	Addl. Credits
Total				4000	140

Group 1. Ability Enhancement Courses (AECs)(10 Courses)

AEC are the courses based upon the content that leads to knowledge enhancement. Ability Enhancement Courses (AEC) are the following:

S. No.	Course Code	Course Title	Semester	Ownership Department	Contact Hours	Credits	Marks
1	22AEC02/ 22AEC07/ 22AEC11/ 22AEC17/ 22AEC21	AEC Part I: Language – I Tamil - I – Tamizhum Ariviyalum/ Hindi - I/ French - I/ Malayalam - I/ Sanskrit – I	I	Language Dept.	6	3	100
2	22AEC26	AEC Part II: English - I: English for Professional Communication	I	English Dept.	6	3	100
3	22AEC04/ 22AEC08/ 22AEC12/ 22AEC18/ 22AEC22	AEC Part I: Language – II Tamil - II – Panpattu Padhivugalum Ariviyalalargaum/ Hindi - II/ French - II/ Malayalam - II/ Sanskrit – II	II	Language Dept.	6	3	100
4	22AEC28	AEC Part II: English – II: Campus to Corporate	II	English Dept	6	3	100
5	22AEC35	AEC Part III: Academic Skills for Bioscience	II	Bioscience Dept.	3	3	100
6	22AEC05/	AEC Part I: Language – III Tamil-III – Kappiyamum	III	Language Dept.	6	3	100

	22AEC09/ 22AEC13/ 22AEC19/ 22AEC23	Meippadukalum/ Hindi - III/ French - III/ Malayalam - III/ Sanskrit - III					
7	22AEC29	AEC Part II: English - III: English through Literature	III	English Dept	6	3	100
8	22AEC06/ 22AEC10/ 22AEC14/ 22AEC20/ 22AEC24	AEC Part I: Language – IV Tamil -IV - Vazhakkarakalum Urainadaium/ Hindi - IV/ French - IV/ Malayalam - IV/ Sanskrit - IV	IV	Language Dept.	6	3	100
9	22AEC30	AEC Part II: English - IV: Anthology of Literature	IV	English Dept	6	3	100
10	22AEC55	AEC Part III: Capstone Project for Bioscience	IV	Bioscience Dept.	-	4	100
Total						31	1000

Group 2. Discipline Specific Courses (DSCs) (15 Courses)

These courses are to be studied compulsorily by the students as a core requirement. The students are required to take DSCs across six semesters. The courses designed under this category aim to cover the basics that a student is expected to imbibe in the particular discipline. It includes Major project.

S. No.	Course Code	Course Title	Semester	Contact Hours	Credits	Marks
1	22BTU01	DSC - 1: Cell Biology	1	4	3	100
2	22BTU02/ 22MBU02	DSC - 2: Biochemistry	1	4	3	100
3	22BTU03	DSC - 3: Lab in Cell Biology and Biochemistry	1	5	3	50
4	22BTU04	DSC - 4: Microbiology	2	3	3	100
5	22BTU05	DSC - 5: Genetics	2	3	3	100
6	22BTU06	DSC - 6: Lab in Microbiology and Genetics	2	4	3	50
7	22BTU07	DSC - 7: Molecular Biology	3	3	3	100
8	22BTU08/ 22MBU08	DSC - 8: Immunology	3	3	3	100
9	22BTU09	DSC - 9: Lab in Molecular Biology and Immunology	3	3	3	50
10	22BTU10	DSC - 10: Applied Chemistry	3	3	3	100
11	22BTU11/ 22MBU11	DSC - 11: rDNA Technology	4	3	3	100
12	22BTU12	DSC - 12: Bioprocess Technology	4	3	3	100
13	22BTU13	DSC - 13: Lab in rDNA and Bioprocess Technology	4	4	3	50
14	22BTU14	DSC - 14: Environmental Biotechnology	5	4	4	100
15	22BTU15	DSC - 15: Medical Biotechnology	5	5	4	100
16	22BTU16	DSC - 16: Lab in Environmental and Medical Biotechnology	5	5	4	100
17	22BTU17/ 22MBU17	DSC - 17: Internship Training	5	Completed		
18	22BTU18/ 22MBU18	DSC - 18: Project Work	6	5	4	100
Total					55	1500

Group 3. Discipline Specific Elective (DSEs) (10 Courses)

Discipline Specific Elective courses offered under the main discipline of study which may be specialized or advanced or supportive to the discipline of study. Students can choose any TEN courses from the following list.

S. No.	Course Code	Course Title	Ownership Department	Contact Hours	Credits	Marks
1	22BTU19/ 22MBU19	DSE - 1: Biophysics and Bioinstrumentation	Biotechnology	5	4	100
2	22BTU20/ 22MBU20	DSE - 2: Bioentrepreneurship	Biotechnology			
3	22BTU21/ 22MBU21	DSE - 3: Bioethics, Biosafety and IPR	Microbiology	3	3	100
6	22BTU22/ 22MBU22	DSE - 6: Industrial Exposure Training	Biotechnology/ Microbiology	4 Weeks	4	100
7	22BTU23/ 22MBU23	DSE - 7: Human Physiology and Anatomy	Microbiology	5		
8	22BTU24	DSE - 8: Therapeutic Biotechnology	Biotechnology			
9	22BTU25/ 22MBU25	DSE - 9: Ayush	Biotechnology	4	3	100
10	22BTU26/ 22MBU26	DSE - 10: Bionanotechnology	Biotechnology	4	3	100
11	22BTU27	DSE - 13: Plant and Agricultural Biotechnology	Biotechnology	6	5	100
12	22BTU28	DSE - 14: Animal Biotechnology	Biotechnology	6	5	100
13	22BTU29	DSE - 15: Lab in Plant and Animal Biotechnology	Biotechnology	6	5	100
14	22BTU30/ 22MBU30	DSE - 11 Molecular Diagnosis	Microbiology	4	3	100
15	22BTU31	DSE - 12: Marine Biotechnology	Microbiology			
16	22BTU32/ 22MBU32	DSE - 4: Bioinformatics	Bioinformatics	4	3	100
17	22BTU33/ 22MBU33	DSE - 5: Biocompost Technology and Bioinoculant	Microbiology			
Total (Any 10 Courses)						1000

Industrial Exposure Training (IET):

Students can opt for Industrial Exposure Training during fifth semester for a period of 4 weeks, in such case one DSE course will be exempted.

The Continuous Internal Assessment mark distribution for IET is as follows:

Component	Mode of Conduct	Project Coverage	Marks
3 Reviews	Presentation	Phase by Phase	25
Work Diary	Written	Phase by Phase	10
Report	Submission	Entire Process	15
Total			50

Viva-voce Marks for the Industrial Exposure Training will be given based on the report and viva-

voice examination, conducted by the Department.

Report: 30 Marks

Viva-voce: 20 Marks

Project Work:

During the Sixth semester, each student should undertake a project work and submit the report. A guide will be allotted to each student by the Department. A student can select any research topic in discussion with the guide. The project report will be evaluated jointly by the internal and external examiners for **50 Marks** and Viva - voce examination shall be conducted jointly for **50 Marks**.

Three Reviews should be conducted and marks have to be entered in Myclassroom portal as follows:

Review	– 25 Marks
Work Dairy	– 10 Marks
Report	– 15 Marks
Total	– 50 (Internal) Marks

End Semester Viva - Voce will be conducted for 50 (External) Marks.
(Dissertation - 30 Marks & Viva-voce - 20 Marks)

Group 4. Generic Elective Courses (GECs) (5 Courses)

Generic Elective Courses are interdisciplinary in nature. They are additional courses based on expertise, specialization, requirements, scope, and need of the department. The student has to subscribe any 5 courses in the following list:

Sl. No.	Course Code	Course Title	Semester	Ownership Department	Contact Hours	Credits	Marks
1	22GEU16A	GEC - 1: Biostatistics and Research Methodology	II	Mathematics	3	2	50
	22GEU16B	Biostatistics and Research Methodology lab			2	2	50
2	22GEU17A	Statistics for Bioscience			3	2	50
	22GEU17B	Statistics for Bioscience Lab			2	2	50
3	22GEU07	GEC - 2: English for Research Writing	III	English	3	3	100
4	22GEU08	English for Persuasive Communication					
5	22GEC01/ 22GEC02/ 22GEC03/ 22GEC04/ 22GEC05	GEC - 3: Spoken Hindi/ Spoken Tamil/ Spoken Telugu/ Spoken Malayalam/ Spoken French	IV	Languages	3	2	100
8	22GEU54	GEC-4: A. Programming in ANSI C	IV	ICT	3	2	50
	22GEU55	B. Programming in ANSI C Lab			2	2	50
9	22GEU56/	A. Perl Programming			3	2	50

	22GEU57	B. Perl Programming Lab			2	2	50
6	22GEU22	GEC - 5: Basic Mathematics for Competitive Examinations	V	Mathematics	3	3	100
7	22GEU23	Talent Enhancement Course: Logical Reasoning and Aptitude					
Total						16	500

Group 5. Audit Non - Credit Courses (ANCC)

Non - Credit Courses are intended for students who want to gain general knowledge, learn a new skill, upgrade existing skills, enrich their understanding of a wide range of topics, or develop personal interests. A student has to complete any two courses during Semester I and II.

Part IV - ANCC		
S. No.	Course Code	Course Name
Semester I - ANCC 1		
1.	22ANC01	Environmental Studies
Semester II - ANCC 2 - Values & Ethics		
2.	22ANC02	Human Rights
3.	22ANC03	Women's Rights
4.	22ANC04	Yoga for Human Excellence
5.	22ANC05	Indian Culture and Heritage
6.	22ANC06	Introduction to Cyber Security
7.	22ANC07	Consumer Protection
8.	22ANC08	Constitution of India
9.	22ANC09	Waste Management

Student has to take part in any one extension activity during their course of study.

Part V - ANCC 3 - Extension Activities		
S. No.	Course Code	Course Name
1.	22ANC10	National Service Scheme
2.	22ANC11	National Cadet Corps
3.	22ANC12	Youth Red Cross
4.	22ANC13	Red Ribbon Club
5.	22ANC14	Rotaract Club
6.	22ANC15	Sports
7.	22ANC16	Association Activities
8.	22ANC17	Club Activities

Group 6.**i) Drive-Through Course (DTC) I & II – Additional Credits**

These courses are intended to bring out and promote the self-learning initiative of the students – where their own motivation is what drives them to complete the course and not external compulsions. This fosters the habit of keeping oneself updated always by means of self-study. It gives opportunities to the students to explore new areas of interest and earn additional credits. Students can take any number of courses under this cafeteria system. The credits will not be taken for CGPA calculation. Additional 4 credits per Course will be given on submission of certificate.

1. SWAYAM - NPTEL
2. Coursera

3. Any courses certified by statutory bodies.

ii) Drive - Through Course (DTC – III) – To be Completed

Internship Training / Mini Project / Spoken Tutorial / Economic Talent Test etc.

Students individually or with the maximum of four members per batch should take up either Internship training or mini project for a period of fifteen days during IV Semester vacation. The report will be evaluated and viva - voce examination will be conducted during 5th semester. Otherwise, the students have to complete one spoken tutorial course or any certification course suggested by the department.

VIII. Semester - wise Scheme

Semester I											
Course Code	Course Title	T/P/ E	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/ EM/ EN	G/L/ R/N	
22AEC02/ 22AEC07/ 22AEC11/ 22AEC17/ 22AEC21	AEC Part I: AEC 1: Language – I Tamil - I – Tamizhum Ariviyalum/ Hindi - I/ French - I/ Malayalam - I/ Sanskrit - I	T	3	6	50	50	100	3			
									SD	L	
									SD	N	
									SD	G	
									SD	R	
								SD	N		
22AEC26	AEC Part II: AEC 2: English - I: English for Professional Communication	T	3	6	50	50	100	3	SD	G	
22BTU01	DSC - 1: Cell Biology	T	3	4	50	50	100	3	SD	G	
22BTU02/ 22MBU02	DSC - 2: Biochemistry	T	3	4	50	50	100	3	SD	N	
22BTU03	DSC - 3: Lab in Cell Biology and Biochemistry	P	3	5	25	25	50	3	SD	N	
22BTU19/ 22MBU19	DSE - 1: Biophysics and Bioinstrumentation	T	3	5	50	50	100	4	SD	G	
22BTU20/ 22MBU20	DSE - 2: Bioentrepreneurship								EN	N	
DTC - I: Additional Credit Courses (NPTEL/Coursera)								4	SD	N	
22ANC01	ANCC - 1 (NF2F) Environmental Studies	T	-	2	-	-	Completed		SD	G	
Total				30 +2			550	19 + 4			
Semester II											
Course Code	Course Title	T/P/ E	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/ EM/ EN	G/L/ R/N	
22AEC04/ 22AEC08/ 22AEC12/ 22AEC18/ 22AEC22	AEC Part I: AEC 3: Language – II Tamil - II – Panpattu Padhivugalum Ariviyalalargaum/ Hindi - II/ French - II/ Malayalam - II/ Sanskrit – II	T	3	6	50	50	100	3	SD		
										L	
										N	
										G	
										R	

										N
22AEC28	AEC PART II: AEC 4: English II: Campus to Corporate	T	3	6	50	50	100	3	SD	G
22AEC35	AEC Part III: AEC 5: Academic Skills for Bioscience	T	3	3	50	50	100	3	SD	N
22BTU04	DSC - 4: Microbiology	T	3	3	50	50	100	3	SD	G
22BTU05	DSC - 5: Genetics	T	3	3	50	50	100	3	SD	G
22BTU06	DSC - 6: Lab in Microbiology and Genetics	P	3	4	25	25	50	3	SD	G
	GEC - 1:									
22GEU16 A	Biostatistics and Research Methodology	T	3	3	25	25	50	2	EN	G
22GEU16 B	Biostatistics and Research Methodology Lab	P	3	2	25	25	50	2		
22GEU17 A	Statistics for Bioscience	T	3	3	25	25	50	2		
22GEU17 B	Statistics for Bioscience Lab	P	3	2	25	25	50	2		
22ANC02 22ANC03 22ANC04 22ANC05 22ANC06 22ANC07 22ANC08 22ANC09	ANCC-2 (NF2F) Human Rights Women's Rights Yoga for Human Excellence Indian Culture and Heritage Introduction to Cyber Security Consumer Protection Constitution of India Waste Management*	T	-	2	-	-	Completed	-	SD	G N G N G N N G
DTC - II: Additional Credit Courses (NPTEL/Coursera)								4		
Total				30			650	22 +4		
Semester III										
Course Code	Course Title	T/P/E	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/EM/EN	G/L/R/N
22AEC05/ 22AEC09/ 22AEC13/ 22AEC19/ 22AEC23	AEC Part I: AEC 6: Language – III Tamil - III – Kappiyamum Meippadukalum/ Hindi - III/ French - III/ Malayalam - III/ Sanskrit – III	T	3	6	50	50	100	3	SD	L N G R N
22AEC29	AEC PART II: AEC - 7 English III: English through Literature	T	3	6	50	50	100	3	SD	G
22BTU07	DSC - 7: Molecular Biology	T	3	3	50	50	100	3	SD	G
22BTU08/ 22MBU08	DSC - 8: Immunology	T	3	3	50	50	100	3	SD	G
22BTU09	DSC - 9: Lab in Molecular Biology and Immunology	P	3	3	25	25	50	3	EM	G
22BTU10	DSC - 10: Applied Chemistry	T	3	3	50	50	100	3	SD	N
22BTU21/ 22MBU21	DSE - 3: Bioethics, Biosafety and IPR	T	3	3	50	50	100	3	SD	N

22GEU06	GEC - 2: English for Research Writing	T	3	3	50	50	100	3	SD	G
22GEU08	English for Persuasive Communication									
Total				30			750	24		
Semester IV										
Course Code	Course Title	T/P/ E	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/ EM/ EN	G/L/ R/N
22AEC06/ 22AEC10/ 22AEC14/ 22AEC20/ 22AEC24	AEC Part I: AEC 8: Language – IV Tamil - IV – Vazhakkarukalum Urainadaium/ Hindi - IV/ French - IV/ Malayalam - IV/ Sanskrit – IV	T	3	6	50	50	100	3	SD	L N G R N
22AEC30	AEC PART II: AEC 9 English IV: Anthology of Literature	T	3	6	50	50	100	3	SD	G
22AEC55	AEC PART III: AEC 10: Capstone Project for Bioscience	T	3	-	50	50	100	4	EM	N
22BTU11/ 22MBU11	DSC - 11: rDNA Technology	T	3	3	50	50	100	3	SD	G
22BTU12	DSC - 12: Bioprocess Technology	T	3	3	50	50	100	3	EN	G
22BTU13	DSC - 13: Lab in rDNA and Bioprocess Technology	P	3	4	25	25	50	3	EN	G
22GEC01/ 22GEC02/ 22GEC03/ 22GEC04/ 22GEC05	GEC - 3: Spoken Hindi/ Spoken Tamil/ Spoken Telugu/ Spoken Malayalam/ Spoken French	T	3	3	100	-	100	2	SD	L N R R G
22GEU54 22GEU55	GEC - 4: A. Programming in ANSI C B. Programming in ANSI C Lab	T P	3 3	3 2	25 25	25 25	50 50	2 2	EM	G
22GEU56 22GEU57	A. Perl Programming B. Perl Programming Lab	T P	3 3	3 2	25 25	25 25	50 50	2 2		
Total				30			750	25		
Semester V										
Course Code	Course Title	T/P/ E	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/ EM/ EN	G/L/ R/N
22BTU22/ 22MBU22	DSE - 4: Industrial Exposure Training	-	3	4 Weeks	50	50	100	4	EN	N
OR										
22BTU23/ 22MBU23	DSE - 5: Human Physiology and Anatomy	T	3	5	50	50	100	4	EM	N
22BTU24	DSE - 6: Therapeutic Biotechnology								SD	G
AND										
22BTU14	DSC - 14: Environmental Biotechnology	T	3	4	50	50	100	4	SD	G

22BTU15	DSC - 15: Medical Biotechnology	T	3	5	50	50	100	4	SD	G
22BTU16	DSC - 16: Lab in Environmental and Medical Biotechnology	P	5	5	50	50	100	4	EN	G
22BTU25/ 22MBU25	DSE - 7: Ayush	T	3	4	50	50	100	3	EM	N
22BTU26/ 22MBU26	DSE - 8: Bionanotechnology	T	3	4	50	50	100	3	SD	G
22GEU22	GEC - 5: Basic Mathematics for Competitive Examinations	T	3	3	50	50	100	3	EM	G
22GEU23	Talent Enhancement Course: Logical Reasoning and Aptitude									
22BTU17/ 22MBU17	DTC - III: DSC - 17: Internship Training	P	Completed						EM	N
Total				30			700	25		
Semester VI										
Course Code	Course Title	T/P/ E	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/ EM/ EN	G/L/ R/N
22BTU27	DSE - 9: Plant and Agricultural Biotechnology	T	3	6	50	50	100	5	SD	G
22BTU28	DSE - 10: Animal Biotechnology	T	3	6	50	50	100	5	SD	G
22BTU29	DSE - 11: Lab in Plant and Animal Biotechnology	P	5	5	50	50	100	5	EN	G
22BTU18/ 22MBU18	DSC - 18: Project Work	P	3	5	50	50	100	4	EM	G
22BTU30/ 22MBU30	DSE – 12 Molecular Diagnosis	T	3	4	50	50	100	3	EM	N
22BTU31	DSE - 13: Marine Biotechnology								SD	G
22BTU32/ 22MBU32	DSE - 14: Bioinformatics	T	3	4	50	50	100	3	SD	G
22BTU33/ 22MBU33	DSE - 15: Biocompost Technology and Bioinoculant								EN	N
22ANC10 22ANC11 22ANC12 22ANC13 22ANC14 22ANC15 22ANC16 22ANC17	ANCC 3: Extension Activities National Service Scheme/ National Cadet Corps/ Youth Red Cross/ Red Ribbon Club/ Rotaract Club/ Sports/ Association Activities/ Club Activities	-	-	-	-	-	Grade	-		
Total				30			600	25		
	Total						4000	140 +8		
Drive-Through Course (DTC): Courses offered in SWAYAM - NPTEL, Coursera OR Any courses certified by statutory bodies.			Additional 4 credits per Course will be given on submission of Certificate				During Semester I to Semester VI			

The Courses focuses the following needs:				
Needs	G - Global	N - National	R - Regional	L - Local
SD	Skill Development			
EM	Employability			
EN	Entrepreneurship			

Semester-wise Distribution of Marks and Credits:

Semester	Total Marks	Total Credits
I	550	19 + 4
II	650	22 +4
III	750	24
IV	750	25
V	700	25
VI	600	25
Total	4000	140 + 8

OFFERED BY**List of Courses Offered by Language Department**

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
IV	22GEC01/ 22GEC02/ 22GEC03/ 22GEC04/ 22GEC05	Spoken Hindi/ Spoken Tamil/ Spoken Telugu/ Spoken Malayalam/ Spoken French	B.Sc. BT	T	3	100	-	100	2

List of Courses Offered by English Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
III	22GEU06	English for Research Writing	B.Sc. BT	T	3	50	50	100	3
	22GEU08	English for Persuasive Communication							

List of Courses Offered by Mathematics Department

Semester	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
II	22GEU16A	Biostatistics and Research Methodology	B.Sc. BT	T	3	25	25	50	2
	22GEU16B	Biostatistics and Research Methodology Lab	B.Sc. BT	P	2	25	25	50	2
	22GEU17A	Statistics for Bioscience	B.Sc. BT	T	3	25	25	50	2
	22GEU17B	Statistics for Bioscience Lab	B.Sc. BT	P	2	25	25	50	2
V	22GEU22	Talent Enhancement Course: Basic Mathematics for Competitive Examinations	B.Sc. BT	T	3	50	50	100	3
	22GEU23	Talent Enhancement Course: Logical Reasoning and Aptitude	B.Sc. BT	T	3	50	50	100	3

List of Courses Offered by Computer Technology Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
IV	22GEU54	A. Programming in ANSI C	B.Sc. BT	T	3	25	25	50	2
	22GEU55	B. Programming in ANSI C Lab		P	2	25	25	50	2
	22GEU56	A. Perl Programming		T	3	25	25	50	2

	22GEU57	B. Perl Programming Lab		P	2	25	25	50	2
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List of Courses Offered by Microbiology Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
III	22BTU21/ 22MBU21	Bioethics, Biosafety and IPR	B.Sc. BT	T	3	50	50	100	3
V	22BTU25/ 22MBU25	Human Physiology and Anatomy	B.Sc. BT	T	5	50	50	100	4
VI	22BTU33/ 22MBU33	Biocompost Technology and Bioinoculant	B.Sc. BT	T	3	50	50	100	3
VI	22BTU30/ 22MBU30	Molecular Diagnosis	B.Sc. BT	T	4	50	50	100	3

List of Courses Offered by Bioinformatics Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
VI	22BTU32/ 22MBU32	Bioinformatics	B.Sc. BT	T	3	50	50	100	3

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List of Courses Offered to Microbiology Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
I	22BTU19/ 22MBU19	Biophysics and Bioinstrumentation	B.Sc. MB	T	5	50	50	100	4
I	22BTU20/ 22MBU20	Bioentrepreneurship	B.Sc. MB	T	5	50	50	100	4
V	22BTU25/ 22MBU25	Ayush	B.Sc. MB	T	4	50	50	100	3
V	22BTU26/ 22MBU26	Bionanotechnology	B.Sc. MB	T	4	50	50	100	3

List of Courses Offered to English Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
VI	22GEU65	Environmental Concerns for Literature	BA. English	T	3	50	50	100	2
VI	22GEU66	Ecological Rhetoric							

List of Courses Offered to Catering Science and Hotel Management Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
II	22GEU63	Nutrition and Dietetics	B.Sc. CSHM	T	3	50	50	100	3
II	22GEU64	Food Waste Management							

List of Courses Offered to Costume Design and Fashion Department

Sem	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
VI	22GEU67	Bio Textiles	B.Sc. CDF	T	4	50	50	100	4