



NEHRU ARTS AND SCIENCE COLLEGE

(Autonomous)

Reaccredited by NAAC with 'A' Grade, Certified by ISO 9001:2008 & 14001:2004

Recognized by UGC & Affiliated to Bharathiar University

Nehru Gardens, Coimbatore-641 105

Scheme of Examination

B. Sc. Biotechnology

(Applicable to the students admitted during the academic year 2018-2019 onwards)

Semester	Part	Course Code	Name of the Course	Instruction hours / week	Duration of Examination	Examination Marks			Credits	
						CIA	ESE	Total		
I	I	18U1TAM101 18U1HIN101 18U1MAL101 18U1FRN101	Language – I	5	3	25	75	100	4	
		II	18U2ENG101	English – I	5	3	25	75	100	4
		III	18U3BTC101	Core Paper – I Cell Biology and Histology	4	3	25	75	100	4
			18U3BTC102	Core Paper – II Biotechniques and instrumentation	4	3	25	75	100	4
	18U3BTP204		Core Paper – IV Biotechniques and Microbiology Practical	3	-	-	-	-	-	
	18U3BTA101		Allied Paper – I Chemistry – I	4	3	20	55	75	3	
	18U3BTR203		Allied Paper – III Chemistry Practical	2	-	-	-	-	-	
	IV	18U4ENV101	Ability Enhances Compulsory Course - Environmental Studies	2	3	-	50	50	2	
		18U4HVY101	Human Excellence-Human Values and Yoga Practice – I	1	-	-	-	-	-	
				30				525	21	
II	I	18U1TAM202 18U1HIN202 18U1MAL202 18U1FRN202	Language – II	5	3	25	75	100	4	
		II	18U2ENG202	English – II	5	3	25	75	100	4
		III	18U3BTC203	Core Paper – III Fundamentals of Microbiology	4	3	25	75	100	4
			18U3BTP204	Core Paper – IV Biotechniques and Microbiology Practical	5	3	40	60	100	4
	18U3BTA202		Allied Paper – II Chemistry – II	4	3	20	55	75	3	
	18U3BTR203		Allied Paper – III Chemistry Practical	4	3	20	30	50	2	
	IV	18U4HRC202	Value Education – Human Rights and Constitution of India	2	3	-	50	50	2	
		18U4HVY202	Human Excellence-Human Values and Yoga Practice – I	1	2	25	25	50	2	



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			30				625	25	
III	I	18U1TAM303 18U1HIN303 18U1MAL303 18U1FRN303	Language – III	5	3	25	75	100	4
	II	18U2ENG303	English – III	5	3	25	75	100	4
	III	18U3BTC305	Core Paper – V Biochemistry and Metabolism	4	3	25	75	100	4
		18U3BTP407	Core Paper – VII Biochemistry and Human Physiology Practical	3	-	-	-	-	-
		18U3BTA304	Allied Paper – IV Basics of Computer Applications	3	3	20	55	75	3
		18U3BTR406	Allied Paper – VI C- Programming Practical	2	-	-	-	-	-
	18U4BTS301	Skill Based Paper – I Human Physiology and Disorders	3	3	20	55	75	2	
	IV	18U4NM3BT1 / 18U4NM3AT1 / 18U4NM3CAF / 18U4NM3GTS / 18U4NM3WRT	# @Basic Tamil / ##Advanced Tamil / * NME: Consumer Affairs / Gandhian Thoughts / Women's Rights	2	2	50		50	2
		18U4BT3ED1/ 18U4BT3ED2	Extra Departmental Course	2	3	-	50	50	2
		18U4HVY303	Human Excellence-Human Values and Yoga Practice – II	1	-	-	-	-	-
17U4BTVALC		**Skill Enhancement Add on course-Institute Industry Linkage	-	-	-	-	-	-	
			30				550	21	
IV	I	18U1TAM404 18U1HIN404 18U1MAL404 18U1FRN404	Language – IV	5	3	25	75	100	4
	II	18U2ENG404	English – IV	5	3	25	75	100	4
	III	18U3BTC406	Core Paper –VI Genetics and Developmental Biology	4	3	25	75	100	4
		18U3BTP407	Core Paper – VII Biochemistry and Human Physiology Practical	4	3	40	60	100	4
		18U3BTA405	Allied Paper –V Biostatistics	3	3	20	55	75	3
		18U3BTR406	Allied Paper – VI PC Software Practical	2	3	20	30	50	2
	18U4BTS402	***Skill Based Paper – II Bioinformatics and Computational Biology	4	3	20	55	75	2	
	IV	18U4NM4BT2 18U4NM4AT2 18U4NM4GEN	# @Basic Tamil / ##Advanced Tamil / General Awareness	2	3	50		50	2



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		18U4HVY404	Human Excellence-Human Values and Yoga Practice – II	1	2	25	25	50	2
		18U4BTVALC	**Skill Enhancement Add on course-Institute Industry Linkage	-	-	-	-	-	Grade
				30				700	27
V	III	18U3BTC508	Core Paper –VIII Microbial Biotechnology	5	3	25	75	100	4
		18U3BTC509	Core Paper – IX Immunology	5	3	25	75	100	4
		18U3BTC510	Core Paper – X Recombinant DNA Technology	5	3	25	75	100	4
		18U3BTP613	Core Paper – XIII Microbial, Plant & Animal Biotechnology Practical	4	-	-	-	-	-
		18U3BTP614	Core Paper – XIV Immunology & rDNA Technology Practical	4	-	-	-	-	-
		18U3BTE501/502/503	Discipline Specific Elective Paper – I	4	3	25	75	100	4
		18U4BTS503	Skill Based Paper – III Molecular Biology	3	3	20	55	75	2
				30				475	18
VI	III	18U3BTC611	Core Paper – XI Plant Biotechnology	5	3	25	75	100	4
		18U3BTC612	Core Paper – XII Animal Biotechnology	5	3	25	75	100	4
		18U3BTP613	Core Paper – XIII Microbial, Plant and Animal Biotechnology Practical	4	6	40	60	100	4
		18U3BTP614	Core Paper – XIV Immunology and rDNA Technology Practical	4	6	40	60	100	4
		18U3BTE604/605/606	Discipline Specific Elective Paper – II	4	3	25	75	100	4
		18U3BTE607/608/609	Discipline Specific Elective Paper – III	4	3	25	75	100	4
		18U3BTS604	Skill Based Paper –IV Pharmacology	4	3	20	55	75	2
	IV	18U3BT6EXT	Extension Activity	-	-	50	-	50	2
				30				725	28
Total								3600	140



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LIST OF DISCIPLINE SPECIFIC ELECTIVE PAPERS:

	GROUP A	GROUP B	GROUP C
Paper I / Sem. V	Biotechnology and Food Safety	Food Processing Technology	Quality Control and Assurance
Paper II / Sem. VI	Agricultural Biotechnology	Bioremediation	Nanoscience and Technology
Paper III / Sem. VI	Medical Biotechnology	Molecular Modeling and Drug Design	Stem Cell Research

Basic Tamil - Students who have not studied Tamil upto 12th standard.

##**Advance Tamil** – Students who have studied Tamil language upto 12th standard and chosen other languages under part I of the programme but would like to advance their Tamil language skills.

* **NME** – Student shall choose any one course out of three courses.

** Examinations and Evaluations for Value added course shall be conducted by the Industry and the marks shall be submitted to the COE section for the award of Grade. For Value added course, Examination shall be conducted for 100 marks for a duration of 3 hours.

*****Skill Based Paper II - Bioinformatics and Computational Biology**– 2 hrs theory and 2 hrs Practical. Examination theory only.

@ No End Semester Examinations. Only Continuous Internal Assessment (CIA)

Extra Departmental Course offered by Biotechnology Department to other Department students

S. No.	Semester	Course Code	Name of the Course
1	III	18U4BT3ED1	Vermiculture Technology
2		18U4BT3ED2	Sericulture



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Additional Credit Course

Earning Additional credit course is not mandatory for Course Completion

Additional credits: 8

S. No.	Course	Credit/ Course	Total Credits
1	Completion of Certificate Course	1	1
2	Hindi/ other Foreign languages	1	1
3	Self Study Papers	1	2
4	MOOC Courses/Spoken Tutorial prescribed by the Departments	1	3
5	Representation - Sports/ Social Activities/ Co curricular/ Extracurricular Activities at University/ District/ State/ National/ International levels	1	1
Total			8

Rules: The Students can earn additional credits only if they complete the above during the course period (II to V Sem.) and based on the following criteria. Proof of Completion must be submitted to the Office of Controller of Examinations before the commencement of the VI Semester. (Earning Additional credit course is not mandatory for Course Completion).

1. Students can complete Certification Courses for a minimum of 30hrs (II to V Sem. only) from reputed centers and the same certificate shall be produced to earn a credit. They shall be guided by the Department if needed.
2. Students can opt Hindi/ any Foreign Language approved by Certified Institutions to earn one credit. The certificate of Hindi must be obtained from Dakshin Bharat Hindi Prachar Sabha and He/She has to enroll and complete during their course period (II to V Sem only).
3. Students can earn one credit, if they complete one self study Paper prescribed by the Department. The Departments shall offer two Self Study Papers.



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Self Study Paper offered by Biotechnology Department

S. No.	Semester	Course code	Course Title
1	Semester II to V	17UBTSS01	Hematology
2		17UBTSS02	Histology

4. Students can earn one Credit, if they complete any one MOOC courses/ Spoken Tutorial prescribed by the Department. Students shall earn a maximum of 3 Additional Credits by completing 3 online courses.

List of Online Courses prescribed by Biotechnology Department

1. Libre Office
2. Cell Designer
3. Jmol Application
4. BioPython
5. DWSIM

Note: Other than the above mentioned courses, any course from recognized websites with the consent of the Head of the Department will also be accepted.

5. Award Winners in Sports/Social Activities/ Co curricular/ Extra Curricular Activities at University/ District/ State/ National/ International levels can earn One Extra Credit by producing the Certificate.



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Programme Outcomes

PO1. Critical Thinking: To deepen the students' knowledge and expertise to perform experiments in current biotechnology and allied fields

PO2. Communication: Communicate effectively on bioscience activities with the science community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO3. Social Interaction: Apply reasoning up to date by the appropriate knowledge to assess societal, legal and cultural issues and the subsequent tasks relevant to the science observation

PO4. Ethics: Apply ethical principles and commit to specialized ethics and responsibilities and norms of the science practice.

PO5. Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO6. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of scientific change.

Programme Specific Outcomes

PSO1 Demonstrate proficiency in basic science and foundation biotechnology courses

PSO2 To develop an entrepreneur skill using their practical and theoretical knowledge

PSO3 To become an efficient researcher using practical skills

PSO4 Demonstrate a working knowledge of advanced biological sciences

PSO5 To make them capable in decision making at personal and specialized level



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Chairman

Board of Studies in Biotechnology

Nehru Arts and Science College

Coimbatore