

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY
SECTOR - 16 C, DWARKA, NEW DELHI - 110078



**SIXTIETH (60th) MEETING
OF
THE ACADEMIC COUNCIL**

DATE : 11.06.2025
TIME : 11:00 AM

OFFLINE / ONLINE ON ZOOM PLATFORM

MINUTES

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S. No.	Agenda Item(s) No.	Particulars	Page No.
25.	AC 60.25	To consider and approve minor typographical corrections in the scheme for V, VI and VIII semester of B.Tech. (Biotechnology) Programme, for the batches admitted in the Academic Session 2022-23, 2023-24 & 2024-25.	19
26.	AC 60.26	To consider and approve the Scheme (1 st – 8 th Semester) and Syllabus (1 st & 2 nd Semester) of B.Tech. (Biotechnology) Programme as per NEP Guidelines, to be implemented from the Academic Session 2025-26.	19
27.	AC 60.27	To consider and approve the scheme and syllabus of M.Tech (Biotechnology) Programme, as per NEP, w.e.f. Academic Session 2025-26.	19
28.	AC 60.28	To ratify the scheme and syllabus for M.Tech. (Food Processing Technology) w.e.f. Academic Session 2024-25.	19-20
29.	AC 60.29	To consider and approve the Scheme and Syllabus of M.Tech (Food Processing Technology) Programme, as per NEP, w.e.f. Academic Session 2025-26.	20
30.	AC 60.30	To consider and approve minor changes in the approved Scheme of M.Tech (Industrial Biotechnology) alongwith total credits & minimum credits requirement for award of degree.	20
31.	AC 60.31	To ratify the syllabus of Common Entrance Test (CET) for the programmes offered by University School of Environment Management w.e.f. Academic Session 2025-26.	20
32.	AC 60.32	Opting of CET-2025 in addition to CUET and Merit based on last qualified examination for admission to M.Sc. (Environment Management), B.Sc. (Environmental Science) and PG in Applied Geoinformatics programmes offered by USEM w.e.f. Academic Session 2025-26.	20
33.	AC 60.33	To ratify start of a new PG Programme in Applied Geoinformatics alongwith Eligibility and Admission Criteria, CUET mapping, seat intake and Scheme and Syllabus w.e.f. Admission Session 2025-26.	20
34.	AC 60.34	To ratify the decision taken for One time relaxation in the promotion policy to a student of BALLB/ BBALLB (Integrated) programme (Batch 2021-2026) under Clause 16 of Ordinance 11 of the University.	21
35.	AC 60.35	To ratify the Admission Criteria for Three Year LL.B Programme offered under the aegis of USLLS for the Academic Session 2025-26 alongwith the CET Syllabus.	21
36.	AC 60.36	To consider and approve the Scheme and Syllabus for Three Year LL.B Programme offered under the aegis of USLLS w.e.f. Academic Session 2025-26.	21
37.	AC 60.37	To ratify changes in the scheme and Syllabus of Integrated BA LL.B (Hons.) and BBA LL.B (Hons.) Programmes in view of enactment of 'The Consumer Protection Act, 2019', 'Bharatiya Nyaya Sanhita, 2023', Bharatiya Sakshya Adhiniyam 2023 and 'the Bharatiya Nagrik Suraksha Sanhita, 2023' offered in the University School of Law and Legal Studies (USLLS) & its affiliated Institutions.	21

Agenda Item No. AC 60.23: To ratify the admission criteria for admission to M.S. (Packaging Technology) offered by USBAS with the order of preference of GATE, UGC-NET, CSIR-NET, CET and CUET w.e.f. Academic Session 2025-26.

The Academic Council ratified the agenda item, as reported.

Agenda Item No. AC 60.24: To consider and approve discontinuation of M.Tech. (Nano-Technology) programme offered by USBAS w.e.f. Academic Session 2025-26.

The Academic Council considered and approved the agenda item, as proposed.

Agenda Item No. AC 60.25: To consider and approve minor typographical corrections in the scheme for V, VI and VIII semester of B.Tech. (Biotechnology) Programme, for the batches admitted in the Academic Session 2022-23, 2023-24 & 2024-25.

The Academic Council considered and approved the agenda item, as proposed.


Agenda Item No. AC 60.26: To consider and approve the Scheme (1st – 8th Semester) and Syllabus (1st & 2nd Semester) of B.Tech. (Biotechnology) Programme as per NEP Guidelines, to be implemented from the Academic Session 2025-26.

The Academic Council considered and approved the agenda item, as proposed.

Agenda Item No. AC 60.27: To consider and approve the scheme and syllabus of M.Tech (Biotechnology) Programme, as per NEP, w.e.f. Academic Session 2025-26.

The Academic Council considered and approved the agenda item, as proposed.

Agenda Item No. AC 60.28: To ratify the scheme and syllabus for M.Tech. (Food Processing Technology) w.e.f. Academic Session 2024-25.



SCHEME OF EXAMINATION

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SYLLABUS

For

Bachelor of Technology

In Biotechnology
(III to VIII Semester)

Offered by

University School of Biotechnology
(2021 onwards)



Guru Gobind Singh Indraprastha University
Sector 16C, Dwarka, Delhi -110078 (INDIA)

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Program Outcomes (POs)

PO1: Apply the knowledge of mathematics, science, engineering fundamentals, and Engineering specialization to the solution of complex engineering problems

PO2: Design solutions for *complex* engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO3: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO4: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO5: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

PO6: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

PO7: Appreciate and execute their professional roles in society as biotechnology professionals, employers and employees in various industries, regulators, researchers, educators and managers.

PO8: Adopt code of ethics in professional and social context and demonstrate exemplary professional, ethical and legal behaviors in decision making.

PO9: Apply written and oral communication skills to communicate effectively in healthcare, industry, academia and research.

PO10: Apply responsibilities to promote societal health and safety, upholding the trust given to the profession by the society.

Program Specific Outcomes (PSOs)

PSO1: Acquire knowledge on the fundamentals of biotechnology for sound and solid base which enables them to understand the emerging and advanced engineering concepts in life sciences.

PSO2: Empower the students to acquire technological knowhow by connecting disciplinary and interdisciplinary aspects of biotechnology.

PSO3: Recognize the importance of Bioethics, IPR, entrepreneurship, Communication and management skills so as to usher next generation of Indian industrialists.

PSO4: Students will be able to gain fundamental knowledge in animal and plant biotechnology and their applications.

PSO5: Students will be equipped to understand three fundamental aspects in biological phenomenon: a) what to seek; b) how to seek; c) why to seek?

PSO6: Students will be able to gain hands on experience in gene cloning, protein expression and purification. This experience would enable them to begin a career in industry that engages in genetic engineering as well as in research laboratories conducting fundamental research.

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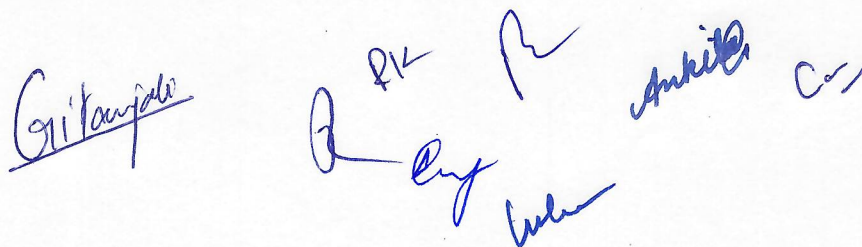
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*** Bachelor in Biotechnology Semester III to VIII — Syllabus To be
Implemented from Academic Session 2021-22**

SEMESTER III

Group	Paper Code	Paper	L	T/P	Credits
Theory	Papers				
PC	BT-201	Microbiology	3	1	4
PC	BA-203	Biochemistry	3	1	4
PC	BT-205	Cell Biology	3	1	4
PC	BT-209	Genetics	3	1	4
PC	CT-211	Introduction to Material and Energy Balance	3	1	4
Practical /Viva Voce					
PC	BT-251	Genetics-Lab	0	3	1.5
PC	CT-253	Introduction to Material and Energy Balance - Lab	0	3	1.5
PC	BT-255	Cell Biology — Lab	0	3	1.5
PC	BT-257	Microbiology Lab	0	3	1.5
PC	BA-259	Biochemistry Lab	0	3	1.5
NUES*		NCC/NSS/YFE and other activities	0	2	2
Total			15	22	29.5

*NUES: Comprehensive evaluation of the students by the concerned coordinator of NCC / NSS / Cultural Clubs / Technical Society / Technical Clubs, out of 100. These activities shall start from the Ist semester and the evaluation shall be completed by the end of the VIth semester.



SEMESTER IV

Group	Paper Code	Paper	L	T/P	Credits
Theory	Papers				
PC	BT-202	Immunology and Immunotechnology	3	1	4
PC	BT-204	Molecular Biology	3	1	4
PC	BT-206	Enzyme Technology	3	1	4
PC	BT-208	Techniques in Biotechnology	3	1	4
PC	CT-212	Fundamentals of Heat and Mass Transfer	3	1	4
Practical /Viva Voce					
PC	BT-254	Molecular Biology — Lab	0	3	1.5
PC	BT-256	Enzyme Technology — Lab	0	3	1.5
PC	BT-258	Immunology and Immunotechnology —Lab	0	3	1.5
PC	BT-260	Techniques in Biotechnology-Lab	0	3	1.5
Total			15	17	26

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SEMESTER V

Code	Paper Code	Paper	L	T/P	Credits
Theory	Papers				
PC	BT-305	Animal Biotechnology	3	1	4
PC	BT-307	Recombinant DNA Technology	1	1	4
PC	BT-311	Plant Biotechnology	3	1	4
PC	BT-313	Unit Operations and Plant Design for Biomanufacturing	3	1	4
*PCE-1 /EAE-1	BT-315	*Professional Core elective- I/***Elective in Emerging Areas-I (any one)	3	1	4
	BT-315E1	Stem Cell Technology			
	BT-315E2	Environmental Sustainability			
	BT-315E3	Pharmacogenomics			
	BT-315E4	Nanobiotechnology			
	BT-315E5	Rational Drug discovery			
	BT-315E6	Artificial Intelligence in Healthcare			
**OAE- I	BT-317	**USBT Open area elective- I or Elective from other schools (any one)	3	1	4
	BT-317O1	Biomaterials			
	BT-317O2	Precision Medicine and Wellness			
	BT-317O3	Regenerative Medicine			
Mandatory course	USMS112	Entrepreneurial Mindset	2		2
Practical/Viva Voce					
PC	BT-353	Unit Operations and Plant Design for Biomanufacturing Lab	0	3	1.5
PC	BT-355	Animal tissue Culture — Lab	0	3	1.5
PC	BT-357	Recombinant DNA Technology-Lab	0	3	1.5
PC	BT-361	Plant Biotechnology — Lab	0	3	1.5
Total			18	18	32

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SEMESTER VI

Group	Paper Code	Paper	L	T/P	Credits
Theory Papers					
PC	BT-314	Bioinformatics	3	1	4
PC	BT-316	Intellectual Property Rights, Biosafety and Bioethics in Biotechnology	3	1	4
PC	BT-318	Downstream Processing	3	1	4
PC	BT-322	Bioprocess Engineering	3	1	4
PCE-2/ EAE-2 (Theory)	BT-312	*Professional Core Elective-2/ ***Elective in Emerging Areas-2 (any one)	3	1	4
	BT-312E1	Food and Nutrition Technology			
	BT-312E2	Statistical Methods in Biology and Experimental Design			
	BT-312 E3	Data Science			
OAE-2	BT-320	**Open area elective offered by USBT-1 or Elective from other schools (any one)	3	1	4
	BT-320O1	Plant Secondary Metabolites and Their Applications			
	BT-320O2	Waste Management and Upcycling			
	BT-320O3	Artificial Intelligence for Designing Therapeutics			
		MOOCs (Only Govt. approved platforms like SWAYAM, NPTEL, e-PG Pathshala, etc.)			4
Practical/Viva Voce					
PC	BT 352	Bioinformatics — Lab	0	3	1.5
PC	BT-360	Bioprocess Engineering — Lab	0	3	1.5
PCE-2 EAE-2 (Lab)	BT-354	*Professional Core Elective-2/ ***Elective in Emerging Areas-2 (any one corresponding to the PCE-2*/EAE-2*** theory)	0	3	1.5
	BT-354E1	Food and Nutrition Technology -Lab			
	BT-354E2	Statistical Methods in Biology and Experimental Design			
	BT-354E3	Data Science			
Total			18	15	28.5

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SEMESTER VII

Group	Paper Code	Paper	L	T/P	Credits
Theory Papers					
PC	BT-401	Genome engineering and editing	3	1	4
PC	BT-403	Environmental Biotechnology	3	1	4
PCE-3	BT-405	*Professional Core Elective-3 (any one)	3	1	4
	BT-405E1	Protein Biotechnology			
	BT-405E2	Good laboratory practices and good manufacturing practices			
PCE-4 (Theory)	BT-407	**Professional Core Elective-3 (any one)	3	1	4
	BT-407E1	Computational Biology			
	BT-407E2	Green Biotechnology			
	BT-407E3	Internet of Things in Agriculture			
OAE-3	BT-409	***Open area elective-3	3	1	4
	BT-409O1	Plant Stress Biology			
	BT-409O2	Deep Learning in Biotechnology			
	BT-409O3	Tissue Engineering			
		MOOCS (Only Govt. approved platforms like SWAYAM, NPTEL, e-PG Pathshala, etc.)			4
Practical / Viva Voce					
PC	BT-453	Environmental Biotechnology-Lab	0	3	1.5
PC	BT-455	Genome Engineering and Editing		3	1.5
PCE-3 (Lab)	BT-451	*Professional Core Elective-2/ ***Elective in Emerging Areas-2 (any one corresponding to the PCE-3 theory)	0	3	1.5
	BT-451E1	Protein Biotechnology -Lab			
	BT-451E2	Good laboratory practices and good manufacturing practices - Lab			
PCE-4 (Lab)	BT-457	**Professional Core Elective-4 (any one corresponding to the PCE-4** theory)	0	3	1.5
	BT-457E1	Computational Biology -Lab			
	BT-457E2	Green Biotechnology-Lab			
	BT-457E3	Internet of Things in Agriculture - Lab			

Total	15	17	26
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SEMESTER VIII

Group	Paper Code	Paper	L	T/P	Credits
Practical/Viva Voice					
	BT-450	*Project Work			12
	BT-452	**Journal Club/Seminar			2
Total					14

*By default every student shall do a project work under the supervision of USBT faculty.

Evaluation shall be conducted of 40 marks (Teachers' continuous evaluation/internal assessment) by the supervisor and 60 marks by an external examiner deputed by examinations division (COE) for a total of 100 marks.

** Evaluation shall be conducted of 40 marks (Teachers' continuous evaluation/internal assessment) by appointed teacher and for 60 marks by bench comprising of all faculty and external examiner deputed by examinations division (COE) for a total of 100 marks.

In the absence of any supervisor/faculty, Dean of the school can assign responsibility of the supervisor (for purpose of examinations) to any faculty of the School.

Note:

- 1) The programme of study shall be governed by ordinance 11 of the university.
- 2) Total credits for B.Tech. in Biotechnology (1-8 semesters): 214
- 3) Minimum credits required: 200

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