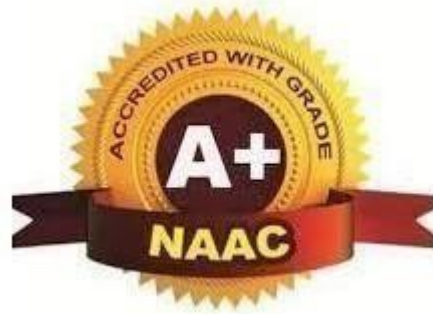




TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology

Mohgaon, Wardha Road, Nagpur - 441 108

An Autonomous Institute



Department
of

Biotechnology Engineering

B.Tech. Biotechnology Engineering

Teaching Scheme

**National Education
Policy 2020**

From

Academic Year 2026-27

Vision of Institute

To emerge as a learning Center of Excellence in the National Ethos in domains of Science, Technology and Management.

Mission of Institute

1. To strive for rearing standard and stature of the students by practicing high standards of professional ethics, transparency and accountability.
2. To provide facilities and services to meet the challenges of Industry and Society.
3. To facilitate socially responsive research, innovation and entrepreneurship.
4. To ascertain holistic development of the students and staff members by inculcating knowledge and profession as work practices.

Vision of the Department

“To produce competent Entrepreneurs, Researchers and industry ready Professionals in Biotechnology through quality education.”

Mission of the Department

- To impart quality technical education and unique interdisciplinary research by merging science and technology
- To make students aware about techniques of modern biotechnology and industrial advancements
- To Inculcate Social and Ethical values in the students and empower them through imparting of knowledge and skills in biotechnology

Program Education Objectives(PEO)

- PEO1: Develop Biotechnology graduates as human resource with technical competencies and strong foundation of science and engineering.
- PEO2: Acquire fundamental knowledge of mathematics, Biosciences and engineering to analyze, design and implement solutions to the Biotechnological problems.
- PEO3: Understand emerging concepts and trends in Biotechnology and allied fields
- PEO4: Apply various tools to develop innovative systems for the bioprocesses

Program Outcomes(PO)

- PO1: Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
- PO2: Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
- PO3: Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/ components/ processes to meet identified needs with consideration for the public health and safety, whole-life cost, netzerocarbon, culture,s ociety and environment as required. (WK5)
- PO4: Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) Independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Program Specific Outcomes(PSO)

PSO1:	Ability to apply the acquired knowledge and recent techniques to come up with ideas in the domains of Bioprocess Engineering, Bioinformatics and Biopharmaceuticals
PSO2:	Ability to utilize their proficiency and skills in solving real life problems in Diagnostics Genetic Engineering and Fermentation Technology using recent technologies.
PSO3:	Analyzing the impact of Biotechnology Engineering solutions in the societal and



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Approved by AICTE, New Delhi, Govt. of Maharashtra

(An Autonomous Institution Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur)



Department of Basic Sciences and Humanities

Scheme of Instruction for First Year of B. Tech. (UG) Programme

Group-B Semester – I (BT)

SN	Sem	Type	BoS / Dept	Sub. Code	Subject	TP	Contact Hours				Credits	% Weightage				ESE Duration Hours
							L	P	SL	Hrs		CT/A	CA	ESE	TOTAL	
FIRST SEMESTER (GROUP-B)																
1	1	BSC	S&H	BSH41108	Mathematical Foundation for Biotechnology	T	4	0	2	6	4	30	10	60	100	3
2	1	BSC	S&H	BSH41109	Energy and Battery Technology	T	3	0	2	5	3	30	10	60	100	3
3	1	BSC	S&H	BSH41110	Energy and Battery Technology Lab	P	0	2	-	2	1	25	-	25	50	-
4	1	ESC	BT	BBT41101	Fundamentals of Biotechnology	T	3	0	2	5	3	30	10	60	100	3
5	1	IKS	S&H	BSH41204	Indian Ancient Technology	T	2	0	2	4	2	15	05	30	50	1
6	1	ESC	ME	BME41101	IDEA-Lab & Engineering Workshop	P	0	4	-	4	2	50	-	-	50	-
7	1	ESC	CE	BCE41102	Environment Sustainability -Lab	P	0	2	-	2	1	25	-	25	50	-
8	1	VSEC	CSE	BCS41104	Fundamentals of Computer-Lab	P	0	2	-	2	1	25	-	25	50	-
9	1	VSEC	S&H	BSH41205	Social Internship	P	0	2	-	2	1	25	-	-	25	-
10	1	PCC	BT	BBT41102	Biotechnology Workshop-Lab	P	0	4	-	4	2	25	-	25	50	-
11	1	CC	S&H	BSH41X01	Liberal Learning Module-I	P	0	4	-	4	2	50	-	-	50	-
TOTAL FIRST SEM							12	20	08	40	22	330	35	310	675	10
SECOND SEMESTER (GROUP-B)																
1	2	BSC	S&H	BSH41209	Applied Mathematics for Biotechnology	T	4	0	2	6	4	30	10	60	100	3
2	2	BSC	S&H	BSH41207	Semiconductor Physics & Optics	T	3	0	2	5	3	30	10	60	100	3
3	2	BSC	S&H	BSH41208	Semiconductor Physics & Optics -Lab	P	0	2	-	2	1	25	-	25	50	-
4	2	ESC	EE	BEE41201	Principle of Electrical Engineering	T	3	0	2	5	3	30	10	60	100	3
5	2	ESC	EE	BEE41202	Principle of Electrical Engineering -Lab	P	0	2	-	2	1	25	-	25	50	-
6	2	ESC	BT	BBT41201	Cell Biology	T	2	0	2	4	2	15	5	30	50	1
7	2	ESC	IT	BIT41205	'C' Language -Lab	P	0	2	2	4	1	25	-	25	50	-
8	2	VSEC	BT	BBT41202	Cell & Molecular Biology-Lab	P	0	2	-	2	1	25	-	25	50	-
9	2	VSEC	S&H	BSH41105	Professional Etiquette-Lab	P	0	2	-	2	1	25	-	-	25	-
10	2	AEC	S&H	BSH41104	Digital Wellness & Basic Communication Lab	P	0	4	-	4	2	50	-	-	50	-
11	2	CC	S&H	BSH41Y01	Liberal Learning Module-II	P	0	4	-	4	2	50	-	-	50	-
TOTAL SECOND SEM							12	18	10	40	21	330	35	310	675	10
Course Category	BSC/ESC (Basic Science Course/ Engineering Science Course.)	PCC (Programme Core courses)	Multidisciplinary courses	VSEC (Skill Course)	Social Science & Management		Experimental Learning Courses		CC (Co-Curricular Courses)							
					AEC (Ability Enhancement Course)	IKS (Indian Knowledge System)										
Credits SEM-I	08 / 06	--	--	02	02	--	--	--	--	02						
Credits SEM-II	08 / 07	02	--	02	--	02	--	--	--	02						
Cumulative Sum	16 / 13	02	--	04	02	02	--	--	--	04						

PROGRESSIVE TOTAL CREDITS: 22+21=43

				July, 2025	4.00	Applicable for AY 2025-26 Onwards
Chairperson	Dean Academics	Vice Principal	Principal	Date of Release	Version	



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Department of Basic Sciences and Humanities

Scheme of Instruction for First Year of B. Tech. (UG) Programme Group-B (BT)

Liberal Learning Modules for SEM-I

SN	Sem	Type	BoS / Dept	Sub. Code	Subject	T/P	Contact Hours			Credits	Weightage		
							L	P	Hrs		INT (1-Certificate)	ESE (MCQ)	External Practical
1	1	CC	S&H	BSH42Y01	Art & Craft	P	2	2	4	2	25	-	25
2	1	CC	S&H	BSH42Y02	Poster & Video Design	P	2	2	4	2	25	-	25
3	1	CC	S&H	BSH42Y03	IPD (Integrated of Personality Development)	P	2	2	4	2	25	25	-
4	1	CC	S&H	BSH42Y04	Sports (Outdoor & Indoor)	P	2	2	4	2	25	-	25
5	1	CC	S&H	BSH41X05	Yoga Practices & NSS	P	2	2	4	2	25	-	25
6	1	CC	S&H	BSH41X06	Interactive English (Level-1)	P	2	2	4	2	25	25	-
7	1	CC	S&H	BSH41X07	Gateway to Competitive Exams (Level-1)	P	2	2	4	2	25	25	-
8	1	CC	S&H	BSH41X08	Foreign Language -French (Level-1)	P	2	2	4	2	25	25	-
9	1	CC	S&H	BSH41X09	Foreign Language -German (Level-1)	P	2	2	4	2	25	25	-
10	1	CC	S&H	BSH41X10	Foreign Language -Japanese (Level-1)	P	2	2	4	2	25	25	-

Liberal Learning Modules for SEM-II

SN	Sem	Type	BoS / Dept	Sub. Code	Subject	T/P	Contact Hours			Credits	Weightage		
							L	P	Hrs		INT (1-Certificate)	ESE (MCQ)	External Practical
1	2	CC	S&H	BSH42Y01	Art & Craft	P	2	2	4	2	25	-	25
2	2	CC	S&H	BSH42Y02	Poster & Video Design	P	2	2	4	2	25	-	25
3	2	CC	S&H	BSH42Y03	IPD (Integrated of Personality Development)	P	2	2	4	2	25	25	-
4	2	CC	S&H	BSH42Y04	Sports (Outdoor & Indoor)	P	2	2	4	2	25	-	25
5	2	CC	S&H	BSH42Y05	Indian Cuisine	P	2	2	4	2	25	-	25
6	2	CC	S&H	BSH42Y06	Interactive English (Level-2)	P	2	2	4	2	25	25	-
7	2	CC	S&H	BSH42Y07	Gateway to Competitive Exams (Level-2)	P	2	2	4	2	25	25	-
8	2	CC	S&H	BSH42Y08	Foreign Language -French (Level-2)	P	2	2	4	2	25	25	-
9	2	CC	S&H	BSH42Y09	Foreign Language -German (Level-2)	P	2	2	4	2	25	25	-
10	2	CC	S&H	BSH42Y010	Foreign Language -Japanese (Level-2)	P	2	2	4	2	25	25	-

				July, 2025	4.00	Applicable for AY 2025-26 Onwards
Chairperson	Dean Academics	Vice Principal	Principal	Date of Release	Version	



Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTIONS & SYLLABI

Programme: Biotechnology Engineering

Scheme of Instructions: Second Year B.Tech. in Biotechnology Engineering

Semester--III



Sr. No.	Course Category	Course Code	Course Title	T/P	Contact Hours				Credits	Exam Scheme			ESE Duration (Hours)	Total Marks
					L	P	SL	Hrs.		CT/IA	CA	ESE		
1	PCC	BBT32301	Microbiology	T	3	-	-	3	3	30	10	60	3	100
2	PCC	BBT32302	Molecular Biology	T	3	-	-	3	3	30	10	60	3	100
3	MDM	BSH423	Bioprocess Calculations	T	2	-		2	2	14	6	30	2	50
4	OEC	BEC3230X	Open Elective I	T	4	-		4	4	30	10	60	3	100
5	HSSM	BSH32307	Entrepreneurship and Startups	T	2	-		2	2	14	6	30	2	50
6	VEC	BSH32308	Analytical Techniques Lab	P	-	4		4	2	14	6	30	2	50
7	PCC	BBT32303	Microbiology Lab	P	-	2		2	1	-	25	25	2	50
8	PCC	BBT32304	Molecular Biology Lab	P	-	2		2	1	-	25	25	2	50
9	PCC	BBT32308	Sustainable Development Goals	T				2	2		20	30	2	50
10	CEP	BBT32309	Field Project (Micro project)	P	-	4		4	2	-	50	50	2	100
11	AEC	BBT32305	Liberal Learning Module-III	P	-	2		2	1	50	-	-	2	50
Total				-	14	14		31	23	182	168	400	25	750

Course Category	BSC/ESC (Basic Science Course/Engineering Science Course.)	PCC (Program Core courses)	PEC (Programme Elective courses)	OEC (Open Elective Course)	Multi-disciplinary courses	VSEC (Skill Course)	VEC (Value Education Courses)	Humanities Social Science & Management		Experiential Learning Courses	CC (Liberal Learning Courses)
								AEC (Ability Enhancement Course)	IKS (Indian Knowledge System)		
Credits	-	10	-	4	2	-	2	3		2	-
Cumulative Sum	16/13	12	-	4	2	4	2	5		2	4

PROGRESSIVE TOTAL CREDITS: 43+23=66

				June, 2026	1.00	Applicable for AY 2026-27
Chairperson	Vice-Principal	Director Administration	Principal	Date of Release	Version	

Tulsiramji Gaikwad-Patil College of Engineering And Technology, Nagpur
TGPCET, Nagpur



Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTIONS & SYLLABI

Programme: Biotechnology Engineering

Scheme of Instructions: Second Year B.Tech. in Biotechnology Engineering

Semester-IV



Sr. No.	Course Category	Course Code	Course Title	T/P	Contact Hours			Credits	Exam Scheme			ESE Duration (Hours)	Total Marks
					L	P	Hrs.		CT/IA	CA	ESE		
1	PCC	BBT32401	Biochemistry Metabolism	T	3	-	3	3	30	10	60	3	100
2	PCC	BBT32402	Immunology	T	3	-	3	3	30	10	60	3	100
3	MDM	BCSE32411	Design Thinking	T	2	-	2	2	14	6	30	2	50
4	OEC	BBT324X	Open Elective II	T	2	-	2	2	14	6	30	2	50
5	VSEC	BBT32406	Bioinformatics Lab	P	-	4	4	2	-	50	50	2	100
6	HSSM	BSH32404	Leadership and Team Dynamics	T	2	-	2	2	14	6	30	2	50
7	VEC	BSH32403	Human Values for Professional Society	T	2	-	2	2	14	6	30	2	50
8	PCC	BBT32403	Biochemistry Metabolism Lab	P	-	2	2	1	-	25	25	2	50
9	PCC	BBT32404	Immunology Lab	P	-	2	2	1	-	25	25	2	50
10	AEC	BBT32407	Liberal Learning Module-IV	P	-	2	2	1	50	-	-	-	50
Total				-	14	10	24	19	166	144	340	24	650

Course Category	BSC/ESC (Basic Science Course/Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	OEC (Open Elective Course)	Multi-disciplinary courses	VSEC (Skill Course)	VEC (Value Education Courses)	Humanities Social Science & Management		Experiential Learning Courses	CC (Liberal Learning Courses)	VAC (Value added Course)
								AEC (Ability Enhancement Course)	IKS (Indian Knowledge System)			
Credits		8	-	2	2	2	2	3		-	-	-
Cumulative Sum	16/13	20	-	6	4	6	2	6		2	4	2

PROGRESSIVE TOTAL CREDITS: 66+19=85

				June, 2026	1.00	Applicable for AY 2026-27
Chairperson	Vice-Principal	Director Administration	Principal	Date of Release	Version	

Director Academics
Tulsiramji Gaikwad-Patil
College of Engineering
And Technology, Nagpur

Dr. Premanand Naktode
Principal
TGPCET, Nagpur



Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEMEOFINSTRUCTIONS & SYLLABI

Programme: Biotechnology Engineering

Scheme of Instructions: Third Year B.Tech. in Biotechnology Engineering

Semester-V



Sr. No.	Course Category	CourseCode	CourseTitle	T/P	Contact Hours			Credits	ExamScheme			ESE Duration (Hours)	Total Marks
					L	P	Hrs.		CT/IA	CA	ESE		
1	PCC	BBT33501	Bioprocess Engineering	T	4	-	4	4	30	10	60	3	100
2	PCC	BBT33502	Genetic Engineering and rDNA Technology	T	4	-	4	4	30	10	60	3	100
3	PEC	BBT43507-09	Program Elective-I	T	4	-	4	4	30	10	60	3	100
4	MDM	BBT33510	Energy Engineering	T	4	-	4	4	30	10	60	3	100
5	OEC	BBTXXX	Open Elective III	T	2	-	2	2	14	06	30	2	50
6	PCC	BBT33504	Bioprocess Engineering lab	P	-	2	2	1	-	25	25	2	50
7	PCC	BBT33505	Genetic Engineering and rDNA Technology Lab	P	-	2	2	1	-	25	25	2	50
8	PCC	BBT43506	Data Analysis & Simulation Lab	P	-	4	4	2	-	50	50	2	100
Total				-	18	8	26	22	134	146	370	20	650

Course Category	BSC/ESC (Basic Science Course/Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	OEC (Open Elective Course)	Multi-disciplinary courses	VSEC (Skill Course)	VEC (Value Education Courses)	Humanities Social Science & Management		Experiential Learning Courses	CC (Liberal Learning Courses)	VAC (Value added Course)
								AEC (Ability Enhancement Course)	IKS (Indian Knowledge System)			
Credits	-	12	4	2	4	-	-	-	-	-	-	-
Cumulative Sum	16/13	32	4	8	8	6	2	10	3	4	2	

PROGRESSIVE TOTAL CREDITS: 85+22=107

				June, 2026	1.00	Applicable for AY 2026-27
Chairperson	Vice-Principal	Director Administration	Principal	Date of Release	Version	

Director Academics
Tulsiramji Gaikwad-Patil
College of Engineering
And Technology, Nagpur

Principal
TGPCET, Nagpur



Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTIONS & SYLLABI

Programme: Biotechnology Engineering

Scheme of Instructions: Third Year B.Tech. in Biotechnology Engineering

Semester-VI



Sr. No.	Course Category	Course Code	Course Title	T/P	Contact Hours			Credits	Exam Scheme			ESE Duration (Hours)	Total Marks
					L	P	Hrs.		CT/IA	CA	ESE		
1	PCC	BBT33601	Mass Transfer in Biotechnology	T	3	-	3	3	30	10	60	3	100
2	PCC	BBT33602	Bio Reaction Engineering	T	3	-	3	3	30	10	60	3	100
3	MDM	BSH 336XX	Biostatistics	T	2	-	2	2	14	06	30	2	50
4	PCC	BBT33603	Mass Transfer in Biotechnology Lab	P	-	2	2	1	-	25	25	2	50
5	PCC	BBT33604	Animal and Plant Biotechnology Lab	P	-	2	2	1	-	25	25	2	50
6	VSEC	BBT33612	Microbial Identification Studies	P	-	4	4	2	-	50	50	2	100
7	PEC	BBT33605-7	Professional Elective-II	T	4	-	4	4	30	10	60	3	100
8	PEC	BBT33608-10	Professional Elective-III	T	4	-	4	4	30	10	60	3	100
9	Project	BBT336011	Project (Minor Project)	P	-	2	2	1	-	25	25	2	50
Total				-	16	10	27	21	134	171	395	22	700

Course Category	BSC/ESC (Basic Science Course/Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	OEC (Open Elective Course)	Multi-disciplinary courses	VSEC (Skill Course)	VEC (Value Education Courses)	Humanities Social Science & Management		Experiential Learning Courses	CC (Liberal Learning Courses)	VAC (Value added Course)
								AEC (Ability Enhancement Course)	IKS (Indian Knowledge System)			
Credits	-	8	8	-	2	2	-	-	-	-	-	-
Cumulative Sum	16/13	41	12	8	10	8	2	10	3	4	2	

PROGRESSIVE TOTAL CREDITS: 107+21=128

 Chairperson Tulsiramji Gaikwad-Patil College of Engineering and Technology, Nagpur	 Vice-Principal Tulsiramji Gaikwad-Patil College of Engineering and Technology, Nagpur	 Director Administration Tulsiramji Gaikwad-Patil College of Engineering and Technology, Nagpur	 Dr. Premanand Naktode Principal TGPCET, Nagpur	June, 2026 Date of Release	1.00 Version	Applicable for AY 2026-27
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Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

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SCHEME OF INSTRUCTIONS & SYLLABI

Programme: Biotechnology Engineering

Scheme of Instructions: :Final Year B.Tech. in Biotechnology Engineering

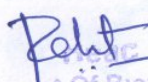


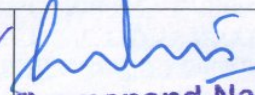
Semester-VII



Sr. No.	Course Category	Course Code	Course Title	T/P	Contact Hours			Credits	Exam Scheme			ESE Duration (Hours)	Total Marks
					L	P	Hrs.		CT/IA	CA	ESE		
1	PCC	BBT34701	Fermentation Technology	T	4	-	4	4	30	10	60	3	100
2	PCC	BBT34702	Bioprocess Equipment Design	T	4	-	4	3	30	10	60	3	100
3	PCC	BBT34710	Bioprocess Equipment Design Lab	P	-	2	2	1		25	25	2	50
4	PEC	BBT34704-06	Professional Elective- IV	T	4	-	4	4	30	10	60	3	100
5	PEC	BBT34707-09	Professional Elective- V	T	4	-	4	4	30	10	60	3	100
6	Project	BBT34703	Project (Major Project)	P	-	8	6	3	-	50	50	2	100
7	MDM	BBA4705	Entrepreneurship in Biotechnology	T	3	-	3	3	30	10	60	3	100
8	MDM	BCS4704	Data Structures with Python Lab	P	-	2	2	1	-	25	25	2	50
Total				-	20	8	28	23	150	150	400	17	700

Course Category	BSC/ESC (Basic Science Course/Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	OEC (Open Elective Course)	Multi-disciplinary courses	VSEC (Skill Course)	VEC (Value Education Courses)	Humanities Social Science & Management		Experiential Learning Courses	CC (Liberal Learning Courses)	VAC (Value added Course)
								AEC (Ability Enhancement Course)	IKS (Indian Knowledge System)			
Credits	-	8	8	-	4	-	-	-	-	4	-	-
Cumulative Sum	16/13	49	20	8	14	8	2	10	7	4	4	2

PROGRESSIVE TOTAL CREDITS: 128+24=152

 Chairperson	 Vice-Principal	 Director Administration	 Principal	June, 2026	1.00	Applicable for AY 2026-27
Director Academics Tulsiramji Gaikwad-Patil College of Engineering And Technology, Nagpur			Dr. Premanand Naktode Principal TGPCET, Nagpur	Date of Release	Version	



Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTIONS & SYLLABI

Programme: Programme: Biotechnology Engineering

Scheme of Instructions: Final Year B.Tech. in Biotechnology Engineering

Semester-VIII



Sr. No.	Course Category	Course Code	Course Title	T/P	Contact Hours			Credits	Exam Scheme			ESE Duration (Hours)	Total Marks
					L	P	Hrs.		CT/IA	CA	ESE		
1	PCC	BBT44801	Research Methodology(Online)	T	4	-	4	4	-	25	75	3	100
3	Project	BEC44802	Internship/ Industrial Training	P	-	24	24	12	-	150	150	3	300
Total				-	8	24	32	16	-	200	300	9	500

Course Category	BSC/ESC (Basic Science Course/Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	OEC (Open Elective Course)	Multi-disciplinary courses	VSEC (Skill Course)	VEC (Value Education Courses)	Humanities Social Science & Management		Experiential Learning Courses	CC (Liberal Learning Courses)	VAC (Value added Course)
								AEC (Ability Enhancement Course)	IKS (Indian Knowledge System)			
Credits		4	-	-	-	-	-	-	-	12	-	-
Cumulative Sum	16/13	53	20	8	14	8	2	10	10	19	4	2

PROGRESSIVE TOTAL CREDITS: 152+16=168

				June, 2026	1.00	Applicable for AY 2026-27
Chairperson	Vice-Principal	Director Administration	Principal	Date of Release	Version	

Director Academics
Tulsiramji Gaikwad-Patil
College of Engineering
And Technology, Nagpur

Dr. Premanand Naktode
Principal
TGPCET, Nagpur



Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTIONS & SYLLABI

Program: Biotechnology Engineering

List of Electives offered by

Biotechnology Engineering

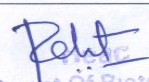


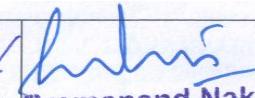


Course Code	Professional Elective-I	Course Code	Professional Elective-II	Course Code	Professional Elective-III
	Semester V		Semester VI		Semester VI
BBT33507	Bioinformatics	BBT33605	Enzyme Technology	BBT33608	Biosimilars Technology
BBT33508	Biofertilizer and Biopesticide Technology	BBT33606	Precision Medicine Technology	BBT33609	Stem cell Technology
BBT33509	Pharmaceutical Technology	BBT33607	Synthetic Biology	BBT33610	Metagenomics

Course Code	Professional Elective-IV	Course Code	Professional Elective-V
	Semester VII		Semester VII
BEC44704	Instrumentation & Bioprocess Control	BEC44707	Good Manufacturing and Laboratory Practices
BEC44705	Tissue Engineering and organ Printing	BEC44708	Biosensors
BEC44706	Network Biology	BEC44709	Blockchain in Biotechnology

List of Open Electives offered by Biotechnology Engineering

Course Code	Subject
BBT32309(OE-I)	Food and Nutrition
BBT32408(OE-II)	Waste Management
BBT35310 (OE-III)	Bioterrorism and National Security

 Chairperson	 Vice-Principal	 Director Administration	 Principal	June, 2026	1.00	Applicable for AY 2026-27
Department of Biotechnology Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur	Director Academics Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur	Dr. Premanand Naktode Principal TGPCET, Nagpur	Date of Release	Version		