

B.Tech. Biotechnology

Department of Biotechnology & Bioengineering

School of Biosciences & Technology

Program Structure

Code	Type of Course	Credits
HS	Humanities and Social Sciences including Management, Regulatory courses.	10
BSC	Basic Science courses.	20
ESC	Engineering Science Courses	15
BS	Biological Science courses including laboratory	15
PC	Professional Core Courses	52
PE	Professional Elective Courses	16
OS	Open Subjects - Electives from cross discipline technical and / or emerging subjects	16
PS	Project work, seminar and internship in industry or elsewhere	16
AU	Audit Courses (non-credit)	0
	Total	160

Sem	Name of Course	L	T	P	C
1	BASIC ELECTRICAL AND ELECTRONICS ENGG.	3	0	1	4
1	Engineering Chemistry	3	0	1	4
1	ELEMENTARY MATHS-1	3	0	0	3
1	Engineering Design and Prototyping	2	0	2	4
1	Remedial Biology-I	3	0	0	3
1	Physical Education & YOGA	2	0	0	0
		15	0	4	18

Sem	Name of Course	L	T	P	C
2	ENVIRONMENTAL IMPACT ANALYSIS	2	0	0	0
2	ELEMENTARY MATHS- 2	3	0	0	3
2	Engineering Physics	3	0	1	4
2	Introduction to Python Programming	3	0	1	4
2	COMMUNICATION SKILLS FOR ENGINEERS	2	0	0	2
2	REMEDIAL BIOLOGY-II	3	0	0	3
		16	0	2	16
Sem	Name of Course	L	T	P	C
3	CELL AND MOLECULAR BIOLOGY	3	0	1	4
3	BIOCHEMISTRY	3	0	1	4
3	ANALYTICAL TECHNIQUES IN BIOTECHNOLOGY	3	0	0	3
3	MICROBIOLOGY	3	0	1	4
3	Innovation & ENTERPRENURSHIP	1	0	0	1
3	UNIVERSAL HUMAN VALUES	1	0	0	1
3	Professional Elective -1	3	0	0	3
3	Open Elective -1	3	0	0	3
		20	0	3	23
Sem	Name of Course	L	T	P	C
4	Immunology & Immunotechnology	3	0	1	4
4	Genetics and Evolutionary Biology	3	0	0	3
4	Bioprocess Engineering-I	3	0	0	3
4	Bioinformatics & Computational Biology	3	0	1	4
4	Constitution of India: Law and Engineering	2	0	0	0
4	Engineering Economics	2	0	0	2
4	Professional Elective -2	4	0	0	4

4	Open Elective -2	4	0	0	4
		24	0	2	24
Sem	Name of Course	L	T	P	C
5	Recombinant DNA technology & Genetic Engineering	3	0	1	4
5	Bioprocess Engineering-II	3	0	1	4
5	Enzyme Technology	3	0	0	3
5	Biomaterial and Tissue Engineering	3	0	0	3
5	Summer Training & Technical Seminar-1	0	0	1	1
5	MOOCS Course -1	2	0	0	2
5	Professional Elective -3	3	0	0	3
5	Open Elective -3	3	0	0	3
		18	0	2	23
Sem	Name of Course	L	T	P	C
6	Good Manufacturing & Laboratory Practices	3	0	0	3
6	Intellectual property rights and Regulatory affairs	2	0	0	2
6	Drug Discovery & Development	3	0	1	4
6	Animal Biotechnology	3	0	0	3
6	Indian Knowledge System	2	0	0	2
6	Statistical Analysis using R	2	0	1	3
6	Professional Elective -4	3	0	0	3
6	Open Elective -4	3	0	0	3
		21	0	2	23
Sem	Name of Course	L	T	P	C
7	Environmental & Agricultural Biotechnology	3	0	0	3
7	Biosensors and Nanobiotechnology	3	0	1	4
7	Research Methodology and Scientific Writing	3	0	0	3

7	Summer Training & Technical Seminar-II	0	0	1	1
7	MOOCS Course -2	2	0	0	2
7	Professional Elective -5	3	0	0	3
7	Open Elective -5	3	0	0	3
		15	0	1	19
Sem	Name of Course	L	T	P	C
8	Project & Dissertation	0	0	14	14

Option for Minors:

Sem	Minor in Pharma Tech	L	T	P	C
3	Pharmaceutical Chemistry	3	0	0	3
4	Pharmaceutics	4	0	0	4
5	Pharmacology & Toxicology	3	0	0	3
6	Clinical Trial Designing	3	0	0	3
7	Regulatory Affairs and Quality Control in Pharmaceuticals	3	0	0	3
	Total				16
Sem	Minor in Healthcare Management	L	T	P	C
3	Introduction to Healthcare Systems	3	0	0	3
4	Healthcare Operations and Quality Management	4	0	0	4
5	Health Economics and Policy	3	0	0	3
6	Healthcare Financial Management	3	0	0	3
7	Management of Healthcare Organizations	3	0	0	3
	Total				16

Sem	Professional Elective -1	C	Open Elective -1	C
3	Fundamentals of Cancer Biology	3	Pharmaceutical Chemistry	3
3	AI in Biosciences & Technology	3	Introduction to Healthcare Systems	3
3	Food Processing & Preservation	3	OOPS Using JAVA	3
				3
Sem	Professional Elective -2	C	Open Elective -2	C
4	Virology & Vaccine Technology	4	Pharmaceutics	4
4	Epidemiology	4	Healthcare Operations and Quality Management	4
4	Food Chemistry	4	Data structure using Python	4
Sem	Professional Elective -3	C	Open Elective -3	C
5	Stem Cell & Regenerative Medicine	3	Pharmacology & Toxicology	3
5	Infection Biology and Host Pathogen Interaction	3	Health Economics and Policy	3
5	Food Microbiology & Safety	3	Artificial Intelligence & Robotics	3
Sem	Professional Elective -4	C	Open Elective -4	C
6	Health Informatics	3	Clinical Trial Designing	3
6	Genomics and Proteomics	3	Healthcare Financial Management	3
6	Food Quality Control and Regulatory Affairs	3	Mobile App Development (React Native)	3
Sem	Professional Elective -5	C	Open Elective -5	C
1	Medical Imaging and Diagnostic Techniques	3	Regulatory Affairs and Quality Control in Pharmaceuticals	3
2	Pharmacogenomics	3	Management of Healthcare Organizations	3
3	Food Product Development	3	Database Management System for Healthcare	3