

B.Tech. in Bioengineering Program Structure

Cat	Course	LTP	CH	NC	GC	Cat	Course	LTP	CH	NC	GC
I Semester						II Semester					
IE	Engineering Mechanics	2-1-0	3	-	3	IE	Introduction to Electrical Engineering	3-0-2	5	-	4
IS	Chemistry	3-0-0	3	-	3	IE	Introduction to Computer Science	3-0-2	5	-	4
IS	Physics	3-0-0	3	-	3	IE	Introduction to Bioengineering	3-0-2	5	-	4
IS	Chemistry Lab	0-0-2	2	-	1						
IS	Physics Lab	0-0-2	2	-	1						
IS	Mathematics I	3-1-0	4	-	4	IS	Mathematics II	3-1-0	4	-	4
IE	Engineering Visualization	0-0-2	2	-	1	IE	Engineering Realization	0-0-2	1	-	1
NE	Engineering Design I	0-0-2	2	1	-	NE	Engineering Design II	0-0-2	2	1	-
NH	Communication Skill I	0-0-2	2	1	-	NH	Communication Skill II	0-0-2	2	1	-
NH	Social Connect and responsibilities I	0-0-1	1	0.5	-	NH	Social Connect and responsibilities II	0-0-1	1	0.5	-
NH	Performing Arts I /Sports I	0-0-1	1	0.5	-	NH	Performing Arts II/Sports II	0-0-1	1	0.5	-
Total		11-2-12	25	3	16	Total		12-1-14	27	3	17
III Semester						IV Semester					
LS	Probability, statistics and stochastic process	3-1-0	4	-	4	IE	Materials Science & Engineering F1: Materials selection, F2:Structure of materials, F3:Polymers	3 × (1-0-0)	3	-	3
IE	Signals and Systems	3-1-0	4	-	4	IE	Thermodynamics	3-1-0	4	-	4
IE	Introduction to Machine Learning	3-0-2	5	-	4	PC	Data Structure and Algorithm	3-0-2	5	-	4
PC	Biochemistry	3-0-0	3	-	3	PC	Concepts & Dynamics: Molecular Cell Biology	2-0-2	4	-	3
PC	Microbiology	3-0-2	5	-	4	PC	The Human Immune System: Mechanisms to Detect, Defend and Attack	3-0-0	3	-	3
						PC	Biochemistry Laboratory	0-0-2	2	-	1
LS	Nanoscience	3-0-0	3	-	3	IH	Humanities I	3-0-0	3	-	3
NE	Intro. To Profession	0-0-2	2	1							
Total		18-2-6	26	1	22	Total		17-1-6	24	-	21
V Semester						VI Semester					

PC	Programme Compulsory					PC	Programme Compulsory				
	Computational and System Biology	3-0-2	5	-	4		Introductory Omics	3-0-0	3	-	3
	The Human Machine for Engineers: Quantitative Physiology	3-0-0	3	-	3		Biomaterials Engineering	3-0-0	3	-	3
							Biophysics & Structural Biology	3-0-1	4	-	3.5
							Deep Learning	3-0-3	6	-	4.5
	Genetics and Gene Manipulation	3-0-2	5	-	4		Bioimaging	3-0-0	3	-	3
	Biosensors	3-0-2	5	-	4						
	Program Elective -I	3-0-0	3		3						
IH	Humanities II	3-0-0	3	-	3	PE	Program Elective -II	3-0-0	3		3
NH	Professional Ethics I	0-1-0	1	1	-	NH	Professional Ethics II	0-1-0	1	1	-
Total		18-1-6	25	1	21	Total		18-1-4	23	1	20
	VII Semester						VIII Semester				
PP	B. Tech. Project	0-0-6	6	-	3	IH	Humanities IV	3-0-0	3	-	3
PE / OE	Programme Elective-III & IV	6-0-0	6	-	6	PE / OE	Programme Elective V & VI	6-0-0	6	-	6
	Open Electives - I&II	6-0-0	6		6		Open Electives -III & IV	4-0-0	4		4
IH	Humanities III	3-0-0	3		3						
IS	Environmental Science	2-0-0	2	-	2						
Total		17-0-6	23	-	20	Total		13-0-0	13	-	13
Total of graded and Non-Graded Credit										9	150
Non-Graded Design Credits										6	-
Grand Total										15	165

Distribution of courses in 7th & 8th Semester for specialization

	VII Semester							VIII Semester				
PP	B. Tech. Project	0-0-6	6	-	3	IH	Humanities IV	3-0-0	3	-	3	
PE/ OE	Programme Elective-III &IV	6-0-0	6	-	6	PE / OE	Programme Elective V & VI	6-0-0	6	-	6	
	Open Electives - I&II	6-0-0	6		6		Open Electives - III & IV	4-0-0	4		4	
	Specialization Elective -I	3-0-0	3		3		Specialization Elective -II	3-0-0	3		3	
IH	Humanities III	3-0-0	3	-	3		Specialization Project	0-0-8	8		4	
IS	Environmental Science	2-0-0	2	-	2							
Total		20-0-6	26	-	23	Total		16-0-8	24	-	20	
Total of graded and Non-Graded Credit										9	160	
Non-Graded Design Credits										6	-	
Grand Total										15	175	