

Faculty of Engineering, School of Civil, Biotechnology and Chemical Engineering
Department of Biotechnology and Chemical Engineering

Degree: B. Tech. Biotechnology

Total Credit: 160

Third Semester						Fourth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
MEE2001	Engineering Economics	3	0	0	3	MAS2001	Statistics & Probability	3	0	0	3
MBB21XX	Management of Technology	3	0	0	3	BIT2201	Genetics and Molecular Biology	3	1	0	4
BIT2101	Cell and Microbiology	3	1	0	4	BIT2202	Bioreaction Engineering and Bioenergetics	3	0	3	4
BIT2102	Biochemistry	3	0	3	4	XXX22XX	Flexi Core 2	3	1	0	4
BIT2103	Transport Processes in Biological Systems	3	1	0	4	BIT22XX	Program Elective 1	3	0	0	3
XXX21XX	Flexi Core 1	3	1	0	4	XXX00XX	Open Elective 1	3	0	0	3
BIT2130/ XXX21XX	Simulation Lab 1 / Data Structures and Algorithms Lab	0	0	3	1	BIT2230/ XXX22XX	Simulation Lab 2 /Relational Database Management Systems Lab	0	0	3	1
BIT2131	Cell and Microbiology Lab	0	0	3	1	BIT2231	Genetics and Molecular Biology Lab	0	0	3	1
BIT2170	Project-based Learning 1	0	0	2	1	BIT2270	Project-based Learning 2	0	0	2	1
		18	3	11	25			18	2	11	24
	Total Contact Hours (L+T+P)	32					Total Contact Hours (L+T+P)	31			
Fifth Semester						Sixth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
BIT3101	Bioinformatics	3	0	2	4	BIT3201	Immunology and Immunotechnology	3	1	0	4
BIT3102	Bio-separation Processes	3	1	0	4	BIT32XX	Program Elective 4	3	0	0	3
XXX31XX	Flexi Core 3	3	1	0	4	BIT32XX	Program Elective 5	3	0	0	3
BIT31XX	Program Elective 2	3	0	0	3	BIT32XX	Program Elective 6	3	0	0	3
BIT31XX	Program Elective 3	3	0	0	3	XXX00XX	Open Elective 3	3	0	0	3
XXX00XX	Open Elective 2	3	0	0	3	BIT3202	Professional Practice	0	0	2	1
BIT3130/ XXX31XX	Simulation Lab 3/Object Oriented Programming Lab	0	0	2	1	BIT3230	Immunology and Immunotechnology Lab	0	0	4	2
BIT3131	Bio-separation Processes Lab	0	0	3	1						
BIT3170	Project-based Learning 3	0	0	2	1	BIT3270	Project-based Learning 4	0	0	6	3
		18	2	9	24			15	1	10	22

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Total Contact Hours (L+T+P)		29				Total Contact Hours (L+T+P)		26			
Seventh Semester						Eighth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
BIT41XX	Program Elective 7	3	0	0	3	BIT4270	Major Project	0	0	24	12
BIT41XX	Program Elective 8	3	0	0	3						
XXX00XX	Open Elective 4	3	0	0	3						
XXX00XX	Open Elective 5	3	0	0	3						
BIT4170	Internship (Industry or Research)	0	0	2	1						
		12	0	2	13			0	0	24	12
Total Contact Hours (L+T+P)		14				Total Contact Hours (L+T+P)		24			

Flexi Core

Flexi Core 1	Flexi Core 2	Flexi Core 3
BIT2120 Process Calculations XXX21XX Data Structures and Algorithms	BIT2220 Bioprocess Engineering XXX22XX Relational Database Management Systems	BIT3120 Bioprocess Plant Design XXX31XX Object Oriented Programming

Program Electives	IV	VI	VII
Example – PE1 <ul style="list-style-type: none"> BIT2240: Analytical Techniques in Biotechnology BIT2241: Food Biotechnology 	Example - PE2 <ul style="list-style-type: none"> BIT3040: Genetic Engineering BIT3041: Animal and Plant Biotechnology Example - PE3 <ul style="list-style-type: none"> BIT3140: Biomaterials BIT3141: Principals of Synthetic Biotechnology 	Example – PE4 <ul style="list-style-type: none"> BIT3040: Genetic Engineering BIT3041: Animal and Plant Biotechnology Example - PE5 <ul style="list-style-type: none"> BIT3240: Nano-bioengineering BIT3241: Stem Cell Technology Example - PE6 <ul style="list-style-type: none"> BIT3242: Tissue Engineering BIT3243: Biotherapeutics 	Example - PE 7 <ul style="list-style-type: none"> BIT4140: Recombinant DNA Technology BIT4141: Drug Discovery Example - PE8 <ul style="list-style-type: none"> BIT4142: Genomics and Proteomics BIT4143: Bioremediation

Open Electives

Graded OE	Non-Graded OE
OE1 CSB0001: Introduction to Materials Science and Engineering	OE1 CSB0051: Course Name
OE2 CSB0001: Renewable energy and sustainable engineering	OE2 CSB0052: Course Name
OE3 CSB0001: Introduction to Food Engineering	OE3 CSB0052: Course Name
OE4 CSB0001: Introduction to Business Analytics and Data Science	OE4 CSB0052: Course Name
OE5 CSB0001: Machine learning for life sciences	OE5 CSB0052: Course Name

****Students with CGPA more than or equal to 8.5 in second year are eligible for acquiring Honors degree by attaining additional 18 credits (160+ 18= 178 credits) as per the following scheme:**

Program Electives for Hons.		
Subject name	Semester	Credits
BIT3180*: Research Methodology	Semester V	1
BIT3280: Pharmaceutical Biotechnology	Semester VI	3
BIT4180: Pharmacognosy and Metabolic Engineering	Semester VII	3
BIT4181: Legal and Regulatory issues in Biotechnology	Semester VII	3
BIT4280*: Honors Project	Semester VIII	8