Faculty of Engineering, School of Civil, Biotechnology and Chemical Engineering
Department of Biotechnology and Chemical Engineering
Degree: B. Tech. Computer Science and Biosciences 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	**CSE22XX**	Object Oriented Programming Systems	3	1	0	4
CSB2101	Cell Biology and Biochemistry	3	0	3	4	**CSE22XX**	Design and Analysis of Algorithms	3	1	0	4
CSB2102	Genetics and Molecular Biology	3	1	0	4	**XXX22XX**	Genetic Engineering/ Software Engineering	3	1	0	4
CSE21XX	Data Structures and Algorithms	3	1	0	4	**CSB224X / XXX224X**	Structural and Sequence Analysis/ Immunodiagnostics & Vaccine Manufacturing/ Internet of things	3	0	0	3
XXX21XX	Relational Database Management System/ R Programming	3	1	0	4	**XXX00XX**	Open Elective 1	3	0	0	3
CSE213X / CSB2131	Relational Database Management System Lab/ R Programming Lab	0	0	3	1	**CSE223X**	Object Oriented Programming Systems Lab	0	0	3	1
CSE213X	Data Structures and Algorithms Lab	0	0	3	1	**CSE223X**	Design and Analysis of Algorithms Lab	0	0	3	1
CSB2170	Project-based Learning 1	0	0	2	1	**CSB2270**	Project-based Learning 2	0	0	2	1
		18	3	11	25			18	3	8	24
	Total Contact Hours (L+T+P)	**32**					**Total Contact Hours (L+T+P)**	**29**			
	Fifth Semester						**Sixth Semester**				
Code	**Subject Name**	**L**	**T**	**P**	**C**	**Code**	**Subject Name**	**L**	**T**	**P**	**C**
CSB3101	Bioinformatics	3	0	2	4	**CSB3201**	Computational Biology	3	1	0	4
CSE31XX	Artificial Intelligence and Machine Learning	3	1	0	4	**CSB324X / CSE324X**	Computer Vision/ Natural Language Processing	3	0	0	3
XXX31XX	Pharmaceutical Biotechnology/ Protein Engineering/ Bio-perl	3	1	0	4	**CSB324X / CSE324X**	Sentiment Analysis and Opinion Mining/ Artificial Intelligence in Cyber Security	3	0	0	3
CSB314X / CSE314X	Soft Computing/ Information System Security/	3	0	0	3	**CSB324X/ CSE324X**	Explainable AI/ Generative AI	3	0	0	3

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	Information System Auditing, Control, and Assurance										
CSB314X / CSE314X	Advanced Internet Technologies/ Deep Learning/ Foundations of Blockchain Technology	3	0	0	3	XXX00XX	Open Elective 3	3	0	0	3
XXX00XX	Open Elective 2	3	0	0	3	CSB3202	Professional Practice	0	0	2	1
CSB3131	Biostatics Lab	0	0	2	1	CSB3231	Computational Biology Lab	0	0	4	2
CSE313X	Artificial Intelligence and Machine Learning Lab	0	0	2	1						
CSB3170	Project-based Learning 3	0	0	2	1	CSB3270	Project-based Learning 4	0	0	6	3
		18	3	8	24			15	1	12	22

	Total Contact Hours (L+T+P)	**29**					**Total Contact Hours (L+T+P)**	**28**			
	Seventh Semester						**Eighth Semester**				
Code	**Subject Name**	**L**	**T**	**P**	**C**	**Code**	**Subject Name**	**L**	**T**	**P**	**C**
CSB41XX	Biomedical Data Science and Analytics / Molecular Informatics and Computational Drug Design	3	0	0	3	CSB4270	Major Project	0	0	24	12
CSB41XX	Genomics and Proteomics/ AI and Systems Biology in Precision Medicine	3	0	0	3						
XXX00XX	Open Elective 4	3	0	0	3						
XXX00XX	Open Elective 5	3	0	0	3						
CSB4170	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**			

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****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: Structural Biology	Semester VI	3
BIT4180: Genome Editing and Engineering	Semester VII	3
BIT4181: Introduction to Proteogenomics	Semester VII	3
BIT4280*: Honors Project	Semester VIII	8