

MUJ Faculty of Engineering

Bachelor's in Technology in Computer Science and Bioscience (2025-2026) onwards (160 Credits)

First Semester		
Code	Course Name	Cr
CHY1001	Engineering Chemistry & Lab	3
MAS1001	Calculus & Matrices	3
ECE1001	Digital Systems	3
MEE1009	Manufacturing Processes	3
CSCXXXX	Problem-Solving Using Computers	3
DOA1001	Human Rights and Values	1
CSCXXXX	Problem-Solving Using Computers Lab	1
LLC1011	Communication Skills	2
MEE1036	Engineering Graphics	1
First Semester Credits		
		20

Second Semester		
Code	Course Name	Cr
PHY1001	Engineering Physics & Lab	4
MAS1002	Computational Mathematics	3
CHY1002	Environmental Studies	2
CSCXXXX	Fundamentals of Data Structures	3
CSCXXXX	Data Visualization	2
MEE1038	Creativity & Innovation IDEA Lab	2
BIT1001	Biology for Engineers	2
CSCXXXX	Fundamentals of Data Structure Lab	1
DOA1002	Wellness and Community Services	1
Second Semester Credits		
		20

Third Semester		
Code	Course Name	Cr
CSB2103	Fundamentals of Molecular Biology and Genetics	4
MBB21xx	Principles of Management/ Engineering Economics	3
CSB2105	Data Structure and Algorithms	4
CSB2106	Relational Database Management System	4
CSB2107	Object oriented Programming	4
CSB2130	Relational Database Management System Lab	1
CSB2132	Data Structure and Algorithms Lab	1
CSB2133	Basic Analytical Lab	1
Third Semester Credits		
		22

Fourth Semester		
Code	Course Name	Cr
MAS20XX	Probability and Statistics	3
CSB2202	Design and Analysis of Algorithms	4
MBB21xx	Principles of Management/ Engineering Economics	3
CSB2205	Artificial Intelligence	4
LLCXXXX	Technical Report Writing	2
CSB2204	Bioinformatics	4
CSB2231	Design and Analysis of Algorithms Lab	1
CSB2232	Bioinformatics Lab	1
CSB2271	Project Based Learning - 1	3
Fourth Semester Credits		
		25

Fifth Semester		
Code	Course Name	Cr
CSB3102	Computational and Structural Biology	4
CSB3103	Data Science and Machine Learning	4
CSB3104	Information System Security	4
CSB3105	Recombinant DNA Technology	4
CSBXXXX	Program Elective 1	3
CSB3130	Computational and Structural Biology Lab	1
CSB3132	Data Science and Machine Learning Lab	1
CSB3171	Project Based Learning - 2	3
Fifth Semester Credits		24

Sixth Semester		
Code	Course Name	Cr
	Sixth Semester	
Code	Course Name	Cr
CSB3203	Immunodiagnosics and Vaccine Technology	4
CSB3204	Genomics and Proteomics	4
CSBXXXX	***Industry Elective (PBL -3)	3
CSBXXXX	Program Elective 2	3
CSBXXXX	Program Elective 3	3
CSBXXXX	Program Elective 4	3
XXXXXXX	Open Elective	3
Sixth Semester Credits		23

Seventh Semester		
Code	Course Name	Cr
XXXXXXX	Open Elective	3
XXXXXXX	Open Elective	3
CSBXXXX	Program Elective 5	3
CSBXXXX	Program Elective 6	3
CSB4170	Internship (Industry/ Research/ Industry Certification)	2
Seventh Semester Credits		14

Eighth Semester		
Code	Course Name	Cr
CSB4270	Major Project	12
Eighth Semester Credits		12

MUJ Faculty of Engineering

Bachelor's in Technology in Computer Science and Bioscience (2025-2026) onwards

Minor Specialization/ Honors (160 +18 Credits)

First Semester		
Code	Course Name	Cr
CHY1001	Engineering Chemistry & Lab	3
MAS1001	Calculus & Matrices	3
ECE1001	Digital Systems	3
MEE1009	Manufacturing Processes	3
CSCXXXX	Problem-Solving Using Computers	3
DOA1001	Human Rights and Values	1
CSCXXXX	Problem-Solving Using Computers Lab	1
LLC1011	Communication Skills	2
MEE1036	Engineering Graphics	1
First Semester Credits		20

Second Semester		
Code	Course Name	Cr
PHY1001	Engineering Physics & Lab	4
MAS1002	Computational Mathematics	3
CHY1002	Environmental Studies	2
CSCXXXX	Fundamentals of Data Structures	3
CSCXXXX	Data Visualization	2
MEE1038	Creativity & Innovation IDEA Lab	2
BIT1001	Biology for Engineers	2
CSCXXXX	Fundamentals of Data Structure Lab	1
DOA1002	Wellness and Community Services	1
Second Semester Credits		20

Third Semester		
Code	Course Name	Cr
CSB2103	Fundamentals of Molecular Biology and Genetics	4
MBB21xx	Principles of Management/ Engineering Economics	3
CSB2105	Data Structure and Algorithms	4
CSB2106	Relational Database Management System	4
CSB2107	Object oriented Programming	4
CSB2130	Relational Database Management System Lab	1
CSB2132	Data Structure and Algorithms Lab	1
CSB2133	Basic Analytical Lab	1
Third Semester Credits		22

Fourth Semester		
Code	Course Name	Cr
MAS20XX	Probability and Statistics	3
CSB2202	Design and Analysis of Algorithms	4
MBB21xx	Principles of Management/ Engineering Economics	3
CSB2205	Artificial Intelligence	4
LLCXXXX	Technical Report Writing	2
CSB2204	Bioinformatics	4
CSB2231	Design and Analysis of Algorithms Lab	1
CSB2232	Bioinformatics Lab	1
CSB2271	Project Based Learning - 1	3
Fourth Semester Credits		25

Fifth Semester		
Code	Course Name	Cr
CSB3102	Computational and Structural Biology	4
CSB3103	Data Science and Machine Learning	4
CSB3104	Information System Security	4
CSB3105	Recombinant DNA Technology	4
CSBXXXX	Program Elective 1	3
CSB3130	Computational and Structural Biology Lab	1
CSB3132	Data Science and Machine Learning Lab	1
CSB3171	Project Based Learning - 2	3
CSBXXXX	*Minor Specialization - 1/ Honors	3
Fifth Semester Credits		24
Minor Specialization/ Honors Credits		27

Sixth Semester		
Code	Course Name	Cr
	Sixth Semester	
Code	Course Name	Cr
CSB3203	Immunodiagnostics and Vaccine Technology	4
CSB3204	Genomics and Proteomics	4
CSBXXXX	***Industry Elective (PBL -3)	3
CSBXXXX	Program Elective 2	3
CSBXXXX	Program Elective 3	3
CSBXXXX	Program Elective 4	3
XXXXXXX	Open Elective	3
CSBXXXX	*Minor Specialization -2/ Honors	3
Sixth Semester Credits		23
Minor Specialization/ Honors Credits		26

Seventh Semester		
Code	Course Name	Cr
XXXXXXX	Open Elective	3
XXXXXXX	Open Elective	3
CSBXXXX	Program Elective 5	3
CSBXXXX	Program Elective 6	3
CSB4170	Internship (Industry/ Research/ Industry Certification)	2
CSBXXXX	*Minor Specialization -3 / Honors	3
CSBXXXX	*Minor Specialization -4 / Honors	3
Seventh Semester Credits		14
Minor Specialization/ Honors Credits		20

Eighth Semester		
Code	Course Name	Cr
CSB4270	Major Project	12
CSBXXXX	**Minor Specialization/ Honors (Research Project)	18
Eighth Semester Credits		12
Minor Specialization/ Honors Credits		18

Proposed Specializations

Artificial Intelligence and Machine Learning <ol style="list-style-type: none"> 1. Deep Learning (PE-2) 2. Advance Machine Learning Techniques (PE-3) 3. Natural Language Processing (PE-4) 4. Computer Vision and Pattern Recognition (PE-5) 5. Project Based Learning- 4 (PE-6) 	Cyber Security <ol style="list-style-type: none"> 1. Essentials of Cyber Security (PE-2) 2. Ethical Hacking (PE-3) 3. Blockchain Technology (PE-4) 4. Digital Forensics & Privacy Preservation (PE-5) 5. Project Based Learning-4 (PE-6)
Data Science <ol style="list-style-type: none"> 1. Data Visualization (PE-2) 2. Big Data Analytics (PE-3) 3. Deep Learning (PE-4) 4. Information Retrieval (PE-5) 5. Project Based Learning -4 (PE-6) 	Internet of Things <ol style="list-style-type: none"> 1. Introduction to IoT (PE-2) 2. Privacy and Security in IoT (PE-3) 3. Industrial IoT (PE-4) 4. Cyber Physical System 5. Project Based Learning -4 (PE-6)
Data Science in Biology <ol style="list-style-type: none"> 1. Python Programming for Biotechnologists (PE 2) 2. R programming for Bioscience (PE 3) 3. Data mining and Machine Learning for Bioinformatics (PE 4) 4. Neural Networks (PE 5) 5. Bioperl (PE 6) 	Medical and Health Bioinformatics <ol style="list-style-type: none"> 1. Data Management in Healthcare Analytics (PE 2) 2. Forensic Science and Technology (PE 3) 3. Cheminformatics and QSAR (PE 4) 4. Artificial Intelligence and Cloud Computing in Healthcare (PE 5) 5. Legal and Ethical Aspects of Health Informatics (PE 6)

Industry Elective

<ol style="list-style-type: none"> 1. Project Based Learning-3 	<ol style="list-style-type: none"> 1. Industry Elective 1- Analytics Insights 2. Industry Elective 2 3. Industry Elective 3
---	--

Program Elective 1/ Program Elective 6

<ol style="list-style-type: none">1. Computer Vision2. Computer Graphics and Multimedia Systems3. Social Network Analysis4. Augmented and Virtual Reality5. High Performance Computing6. Image Processing and Application7. Quantum Computing8. Nature Inspired Computing	<ol style="list-style-type: none">9. Compiler Design10. Software Testing11. Protein Engineering12. Metabolic Engineering13. Comparative and Functional Genomics14. Metagenomics15. Synthetic biology
--	--

Program Elective 6 * Students pursuing a specialization will undertake a project relevant to their chosen field

Development Oriented Project

Design Oriented Project

Lab Oriented Project

Study Oriented Project

****Minor Specialization/ Honors (Research Project): Students pursuing Minor Specialization/ Honors will undertake 18 Credit Project in VIII Sem, related to specialization.**