GM UNIVERSITY

PROGRAM DOCUMENT

2025 SCHEME

I-VIII SEMESTER

B.Tech in
CS-Artificial Intelligence, Block chain and Business System

GM UNIVERSITY
Innovating Minds

School of Computer Science & Technology
Faculty of Engineering & Technology

B.Tech. - Computer Science-AI- Block Chain & Business Systems

Program Details

Faculty	Engineering and Technology (FET)
School	School of Computer Science and Technology (SCST)
Department	Computer Science
Program	B.Tech., Computer Science-AI-BC & BS
Director of School	Dr. Sanjay Pande M.B.
Head of Department	Dr. Shankarayya Shastri

1.	**Title of the Award**	B.Tech. in Computer Science-B.Tech.- AI, BC & Business Systems
2.	**Modes of Study**	Full Time
3.	**Awarding Institution /Body**	GM University
4.	**Joint Award**	Not Applicable
5.	**Teaching Institution**	Faculty of Engineering and Technology, GM University
6.	**Date of Program Specifications**	Nov -2024
7.	**Date of Course Approval by the Academic Council of GMU**	---
8.	**Next Review Date:**	---
9.	**Program Approving Regulating Body and Date of Approval**	---
10.	**Program Accredited Body and Date of Accreditation**	---
11.	**Grade Awarded by the Accreditation Body**	---
12.	**Program Accreditation Validity**	---
13.	**Program Benchmark**	N/A

14.	The Bachelor's program in Computer Science and B.Tech.- AI, BC & Business Systems (B.Tech. Computer Science and B.Tech.- AI, BC & Business Systems) offers a comprehensive and innovative education for students aspiring to excel in the dynamic field of computer science, software engineering, and the strategic integration of technology into business operations. This program is meticulously designed to provide students with a robust foundation in both theoretical principles and practical applications of computer science, fostering a deep understanding of creative problem-solving, software design, and advanced technologies in the computer science and B.Tech.- AI, BC & Business Systems industry. Over the course of four years, students engage in a well-structured curriculum that seamlessly integrates core engineering principles with specialized courses in computer science and B.Tech.- AI, BC & Business Systems. The program adopts a hands-on approach, incorporating software projects, system design, and internships to enable students to apply theoretical knowledge to real-world challenges in computer science and B.Tech.- AI, BC & Business Systems. Key areas of study include programming principles, algorithms, data structures, artificial intelligence, machine learning, software development methodologies, computer networks, and the strategic implementation of technology in business environments. Students gain proficiency in using cutting-edge programming languages, development tools, and simulation software, preparing them for the challenges of the contemporary computer science and B.Tech.- AI, BC & Business Systems industry. The B.Tech. Computer Science and B.Tech.- AI, BC & Business Systems program aim to equip graduates for diverse career opportunities across various sectors, with a particular focus on leveraging technology to enhance business processes. Potential career paths encompass roles in technology companies, business enterprises, consulting firms, research and development, and entrepreneurship within the computer science and B.Tech.- AI, BC & Business Systems domain. The interdisciplinary nature of computer science and B.Tech.- AI, BC & Business Systems opens avenues to explore diverse applications, enabling graduates to contribute to advancements in technology, software solutions, and the development of efficient B.Tech.- AI, BC & Business Systems. Continuous learning and staying abreast of the latest industry trends are crucial for graduates to thrive in the rapidly evolving field of computer science and B.Tech.- AI, BC & Business Systems. The program spans eight semesters, providing a holistic education that prepares students for a successful and

	impactful career in the dynamic realm of computer science and B.Tech.- AI, BC & Business Systems innovation.
15.	**Program Educational Objectives (PEOs)** **PEO-1: Knowledge and Technical Skills** The Bachelor's program in Computer Science and B.Tech.- AI, BC & Business Systems aims to provide graduates with a robust foundation in computer science and engineering principles, encompassing algorithms, data structures, artificial intelligence, and machine learning. Upon completion, graduates will possess the knowledge and technical skills necessary to analyze, design, implement, and optimize software systems and intelligent solutions. They will be well-equipped to address real-world challenges, particularly in the strategic integration of technology into business processes, fostering efficiency and innovation. **PEO-2: Professional Competence and Leadership** To instill technical competencies, practical skills, and leadership abilities in graduates, preparing them for success in the dynamic field of computer science and B.Tech.- AI, BC & Business Systems. Graduates will excel in roles within technology companies, business enterprises, consulting firms, research and development, and entrepreneurial ventures within the computer science and B.Tech.- AI, BC & Business Systems domain. They will be capable of assuming both technical and leadership positions, contributing to advancements in technology and innovation, with a specific focus on leveraging technology for strategic business success. **PEO-3: Holistic Development and Adaptability** The program aims to nurture critical thinking, creativity, innovation, collaboration, effective communication, information literacy, flexibility, adaptability, leadership, responsibility, and social and cross-cultural interaction skills. Graduates will demonstrate the ability to adapt to evolving professional environments, ensuring they contribute effectively to the dynamic and challenging field of computer science and B.Tech.- AI, BC & Business Systems. The interdisciplinary nature of the program prepares graduates for diverse career trajectories, fostering holistic development and lifelong learning. The overarching goal of the B.Tech. In Computer Science and B.Tech.- AI, BC & Business Systems is to produce graduates who are well-prepared to meet the challenges of the dynamic computer science and B.Tech.- AI, BC & Business Systems industry, contribute to technological advancements, and make a positive impact on strategic business processes

	and society.
16.	**Program Outcomes (POs) (Graduate Attributes)** **PO-1:** Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO-2:** Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO-3:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO-4:** Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO-5:** Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. **PO-6:** The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **PO-7:** Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **PO-8:** Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **PO-9:** Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **PO-10:** Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. **PO-11:** Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a

	member and leader in a team, to manage projects and in multidisciplinary environments. **PO-12:** Lifelong learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
17.	**Program Specific Outcomes (PSOs):** **PSO-1: Analyze and Address B.Tech.- AI, BC & Business Systems Challenges** Graduates will demonstrate the ability to analyze complex computational requirements specific to B.Tech.- AI, BC & Business Systems, identify challenges, and articulate problems with necessary specifications. Leveraging their understanding of computer science principles within the B.Tech.- AI, BC & Business Systems context, graduates will deliver innovative solutions, addressing issues related to software development, algorithm design, and computational applications in the B.Tech.- AI, BC & Business Systems domain. **PSO-2: Apply B.Tech.- AI, BC & Business Systems Concepts in System Development** Graduates will be equipped to envision, model, design, implement, and test software systems and computational solutions in the context of B.Tech.- AI, BC & Business Systems. They will demonstrate proficiency in addressing technical challenges within the field of computer science and B.Tech.- AI, BC & Business Systems, utilizing their knowledge of algorithms, data structures, and software development methodologies to create efficient, reliable, and innovative applications tailored to business needs. **PSO-3: Conduct and Lead Experimental Validation in B.Tech.- AI, BC & Business Systems** After completing the program, graduates will showcase the capability to strategize, coordinate, and execute experiments for the validation and verification of B.Tech.- AI, BC & Business Systems and solutions. They will adeptly use laboratory techniques and software tools for designing and simulating computational processes, emphasizing the importance of addressing challenges specific to B.Tech.- AI, BC & Business Systems. Graduates will be prepared to assume leadership roles in research projects, effectively managing teams and resources in the context of computer science and B.Tech.- AI, BC & Business Systems. These Program Specific Outcomes are tailored to ensure that graduates are not only well-versed in the theoretical aspects of computer science and engineering but also possess

	the practical skills and leadership qualities required to make meaningful contributions in the specialized field of computer science and B.Tech.- AI, BC & Business Systems. The outcomes emphasize the application of computer science principles in addressing real-world challenges and the development of innovative solutions in the realm of B.Tech.- AI, BC & Business Systems.

Programme Structure

18. **Definition of Credit**:

1 Hr. Lecture (L) per week	1 Credit
2 Hr. Tutorial (T) per week	1 Credit
2 Hr. Practical (P) per week	1 Credit

Sl.No.	Program -Category	Credits
1.	Program-Core courses, elective Courses, open electives	130
2.	Technical Competency	10 (SDTCD)
3.	Life Skills	3(CASP)
4.	Innovation and Entrepreneurial Skills	3(CIPI)
5.	Environmental Awareness and Community Services	3(SA)
6.	Athletics, Sports, Yoga, Gymnasium	3(SA)
7.	Cultural & Literary Activities	3(SA)
8.	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	2(SA&SP)
9.	Placement Training	3(CASP)
	Total	**130+30=160**

18. Courses and Credits:

Semester-1			
S. No.	**Course Code**	**Course Title**	**Credits**
1.	UE25CS1101	Foundational Mathematics for Computer Science	3
2.	UE25CS1102	Analog & Digital Fundamentals	3
3.	UE25CS1103	Advanced Materials Integration in Computing Technology	3
4.	UE25CS1104	Problem Solving through C Programming	3
5.	UE25CS1105	Web Designing & Programming	3
6.	UE25CS1106	Project Based Learning / mini project on Web Designing	2
7.	SDTCD	Technical Competency	0
8.	CASP	Life Skills	0
9.	CIBI	Innovation and Entrepreneurial Skills	0
10.	SA	Environmental Awareness and Community Services	0
11.	SA	Athletics, Sports, Yoga, Gymnasium	0
12.	SA	Cultural & Literary Activities	0
13.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	0
14.	CASP	Placement Training	0
Total			**17**

Semester-2			
S. No.	**Course Code**	**Course Title**	**Credits**
1.	UE25CS1201	Applied Mathematics for Computer Science	3
2.	UE25CS1202	Applied Physics for CSE	3
3.	UE25CS1203	Data Structures & Applications	3
4.	UE25CS1204	Python Programming	3
5.	UE25CS1205	Fundamentals of Computer Networks	3
6.	UE25CS1206	Fundamentals of DBMS	3
7.	UE25CS1207	Project Based Learning / mini project	2
8.	SDTCD	Technical Competency	2
9.	CASP	Life Skills	1
10.	CIBI	Innovation and Entrepreneurial Skills	0
11.	SA	Environmental Awareness and Community Services	1
12.	SA	Athletics, Sports, Yoga, Gymnasium	0
13.	SA	Cultural & Literary Activities	0
14.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	0
15.	CASP	Placement Training	0
Total			**24**

Semester-3

S. No.	Course Code	Course Title	Credits
1.	UE25CS2301	Algorithm Design and Complexity Analysis	4
2.	UE25CS2302	Internet of Things	3
3.	UE25CS2303	Object Oriented Programming	3
4.	UE25CS2304	Computer Organization and Architecture	3
5.	UE25CS2305	Operating System Concepts	3
6.	UE25CS2306	Project Based Learning / mini project	2
7.	SDTCD	Technical Competency	2
8.	CASP	Life Skills	1
9.	CIBI	Innovation and Entrepreneurial Skills	0
10.	SA	Environmental Awareness and Community Services	1
11.	SA	Athletics, Sports, Yoga, Gymnasium	1
12.	SA	Cultural & Literary Activities	0
13.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	0
14.	CASP	Placement Training	1
Total			**24**

Semester-4			
S. No.	**Course Code**	**Course Title**	**Credits**
1.	UE25CS2401	Machine Learning	3
2.	UE25CS2402	Software Development Methodologies	3
3.	UE25CS2403	Discrete Structures for Computing	2
4.	UE25CS2404	Advanced DBMS and PL/SQL	3
5.	UE25CS2405	Automata Theory and Computations	3
6.	UE25CS2406	Project Based Learning	2
7.	SDTCD	Technical Competency	2
8.	CASP	Life Skills	1
9.	CIBI	Innovation and Entrepreneurial Skills	1
10.	SA	Environmental Awareness and Community Services	1
11.	SA	Athletics, Sports, Yoga, Gymnasium	1
12.	SA	Cultural & Literary Activities	1
13.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	0
14.	CASP	Placement Training	1
Total			**24**

Semester-5			
S. No.	**Course Code**	**Course Title**	**Credits**
1.	UE25CS3501	Advanced Machine Learning	3
2.	UE25BS3502	Business Management	3
3.	UE25BS3503	Block chain Technology	3
4.	UE25BS3504	Computational Statistics	3
5.	UE25BS35XX	Professional Elective - 1	3
6.	UE25BS3506	Project Based Learning	3
7.	SDTCD	Technical Competency	2
8.	CASP	Life Skills	0
9.	CIBI	Innovation and Entrepreneurial Skills	0
10.	SA	Environmental Awareness and Community Services	0
11.	SA	Athletics, Sports, Yoga, Gymnasium	1
12.	SA	Cultural & Literary Activities	0
13.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	0
14.	CASP	Placement Training	1
Total			**22**

Semester-6			
S. No.	**Course Code**	**Course Title**	**Credits**
1.	UE25BS3601	Business Intelligence and Power BI	3
2.	UE25BS3602	Advanced Blockchain Technology	3
3.	UE25BS3603	Big Data and Cloud Data Analytics	3
4.	UE25BS36XX	Professional Elective - 2	3
5.	UE25BS3605	Project Based Learning	3
6.	SDTCD	Technical Competency	2
7.	CASP	Life Skills	0
8.	CIBI	Innovation and Entrepreneurial Skills	1
9.	SA	Environmental Awareness and Community Services	0
10.	SA	Athletics, Sports, Yoga, Gymnasium	0
11.	SA	Cultural & Literary Activities	1
12.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	0
13.	CASP	Placement Training	0
Total			**19**

Semester-7			
S. No.	**Course Code**	**Course Title**	**Credits**
1.	UE25CS4701	Intellectual Property Rights	3
2.	UE25CS4702	Industry Internship	3
3.	UE25CS4703	Project – 1	4
4.	UE25CS47XX	Open Elective -1	2
5.	SDTCD	Technical Competency	0
6.	CASP	Life Skills	0
7.	CIBI	Innovation and Entrepreneurial Skills	0
8.	SA	Environmental Awareness and Community Services	0
9.	SA	Athletics, Sports, Yoga, Gymnasium	0
10.	SA	Cultural & Literary Activities	1
11.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/Technical Competition)	1
12.	CASP	Placement Training	1
Total			**15**

Semester-8			
S.No.	**Course Code**	**Course Title**	**Credits**
1.	UE25CS4801	Engineering Project Management	3
2.	UE25CS48XX	Open Elective -2	3
3.	UE25CS4803	Project - 2	6
4.	SDTCD	Technical Competency	0
5.	CASP	Life Skills	0
6.	CIBI	Innovation and Entrepreneurial Skills	1
7.	SA	Environmental Awareness and Community Services	0
8.	SA	Athletics, Sports, Yoga, Gymnasium	0
9.	SA	Cultural & Literary Activities	0
10.	SASP	Co-Curricular Activities (Seminar/Conference/Exhibition/TechnicalCompetition)	1
11.	CASP	Placement Training	0
Total			**14**

Professional Elective – 1 List for 5th Semester

Sl	Course Code	Course Title	Credits
1	UE25BS3540	Devops Essential	3
2	UE25BS3541	Principles of Artificial Intelligence	3
3	UE25BS3542	Software Engineering	3
4	UE25BS3543	Ethical Hacking	3
5	UE25BS3544	Information Network Security	3
6	UE25BS3545	Advanced Cryptography	3

Professional Elective – 2 List for 6th Semester

Sl	Course Code	Course Title	Credits
1	UE25BS3640	Business Intelligence & Analytics	3
2	UE25BS3641	E-Business Systems	3
3	UE25BS3642	Digital Currency: Cryptocurrency and Bitcoins	3
4	UE25BS3643	AI and Data Science	3
5	UE25BS3644	Edge & Fog Computing	3
6	UE25BS3645	AI in IOT/Health care/Cloud	3

Open Electives

Sl. No	Course Title	Course Code	Semester
1.	Data Visualization and Analytics	UE25CS4780	7
2.	Scientific Computing with Python	UE25CS4781	7
3.	Software Engineering	UE25CS4782	7
4.	Legal Technology and Digital evidence	UE25CS4783	7
5.	Digital Transformation for Business leaders	UE25CS4880	8
6.	AI and Automation for Managers	UE25CS4881	8
7.	Cyber security for Business executives	UE25CS4882	8
8.	Digital Twin: Concept and Application in Mechanical Systems	UE25CS4883	8

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