

Cluster: **Engineering** Institute: **UIE** Department: **CSE** Program Name: **BE- Computer Science & Engineering**

Batch: **2025-2029**

Type of Program: **UG**

First Year				Second Year			
	Course Name	Course Category	Credits		Course Name	Course Category	Credits
Semester-1	Logical Thinking & Problem Solving	Major Core	4	Semester-3	Computer Organization and Architecture	Major Core	3
	Mathematics-I	Major Core	5		Advanced Data Structures	Major Core	4
	Communication Skills-I	Skill Enhancement	1		Object Oriented Programming	Skill Enhancement	4
	Academic and Career Pathway Planning	Major Core	0		Probability and Statistics	Major Core	4
	Semiconductor Physics & Applications	Major Core	3		Database Management System	Major Core	4
	Design Thinking & Innovation	Skill Enhancement	1		Universal Human Values, Ethics and Life Skills-2	Value Education	2
	AI Applications Lab	Ability Enhancement	1		Social Internship	Internship	2
	Computer Graphics Lab	Major Core	1		Soft Skills-I	Skill Enhancement	1
	Biology for Engineers	Major Core	3		Entrepreneurship Mindset	Ability Enhancement	1
	Universal Human values, Ethics and Life Skills-I	Value Education	1		Critical Enquiry and Research Methodology	Ability Enhancement	1
Semester - 2	Data Structures and Algorithms	Major Core	4	Semester-4	Machine Learning with Python	Major Core	3
	Mathematics-II	Skill Enhancement	5		Software Engineering	Major Core	3
	Communications Skills - II	Major Core	1		Advanced Database Management System	Skill Enhancement	1
	Digital Electronics	Ability Enhancement	4		Numerical Methods	Major Core	4
	Soft Skills-I	Skill Enhancement	1		Competitive Coding-I	Skill Enhancement	1
	General Proficiency-I	Skill Enhancement	1		Professional Elective-I	Major Elective	3
	Emerging & Disruptive Technologies Workshop	Major Core	2		Mid-Grade Project-I	Project	1
	Programming Practice	Major Core	1		Introduction to SDGs	Value Education	1
	Engineering Physics	Major Core	4		General Proficiency-II	Ability Enhancement	1

					[Track: Innovation] Marketing & Management Essentials	Ability Enhancement	1
					[Track: Innovation] Business Planning & Legal Basics	Skill Enhancement	1
					[Track: Research] Academic Writing	Ability Enhancement	1
					[Track: Research] Statistical Data Analysis	Skill Enhancement	1
					[Track: Employability] Aptitude-II	Ability Enhancement	1
					[Track: Employability] Soft Skills-II	Skill Enhancement	1
Third Year				Fourth Year			
Semester -5	Course Name	Course Category	Credits	Semester-7	Course Name	Course Category	Credits
	Operating Systems	Major Core	3		Professional Elective-V	Major Elective	3
	Design and Analysis of Algorithms	Major Core	4		Capstone Project – I	Project	4
	Computer Networks	Major Core	3		Open Elective-II	Open Elective	3
	Professional Elective-II	Major Elective	3		Environmental Science and Management	Value Education	2
	Professional Elective - III	Major Elective	3		Industry Internship	Internship	1
	Technical Internship	Internship	1		Competitive Coding – IV	Skill Enhancement	1
	Full Stack Development - I	Skill Enhancement	2				
	Competitive Coding – II	Skill Enhancement	1				
	Professional Ethics	Ability Enhancement	1				
	[Track: Innovation] Customer Engagement & Organic Growth	Ability Enhancement	1				
	[Track: Innovation] AI Automation & Sustainability	Skill Enhancement	1				
	[Track: Research] AI & Data-Driven Research	Ability Enhancement	1				
	[Track: Research] Research Ethics & Intellectual Property Rights	Skill Enhancement	1				
	[Track: Employability] Soft Skills-III	Skill Enhancement	1				
[Track: Employability] Aptitude-III	Ability Enhancement	1					

Semester-6	Open Elective-I	Open Elective	3	Semester-8	Professional Elective-VI	Major Elective	3
	System Design	Major Core	2		Open Elective-III	Open Elective	3
	Theory of Computation	Major Core	3		Capstone Project – II	Project	8
	Professional Elective-IV	Major Elective	3		Industrial Internship Project	Internship	14
	Mid Grade Project-II	Project	1				
	Full Stack Development - II	Skill Enhancement	2				
	Competitive Coding – III	Skill Enhancement	1				
	Gender Equity and Empowerment	Value Education	1				
	General Proficiency-III	Skill Enhancement	1				
	Parallel and Distributed Computing	Major Core	3				
	[Track: Innovation] Finance & Economics Fundamentals	Ability Enhancement	1				
	[Track: Innovation] Business Strategies & Operations	Skill Enhancement	1				
	[Track: Research] Emerging Research Tools and Technologies	Ability Enhancement	1				
	[Track: Research] Domain specific Term paper	Skill Enhancement	1				
	[Track: Employability] Soft Skills-IV	Skill Enhancement	1				
[Track: Employability] Aptitude-IV	Ability Enhancement	1					

Elective Baskets			
Speech, Image, Biometrics & AI-ML			
Semester	Course Name	Course Category	Credits
4	Introduction to Machine Learning	Major Elective	3
5	Introduction to Digital Image Processing	Major Elective	3
5	Introduction to Speech and Language Processing	Major Elective	3
6	Deep Learning	Major Elective	3
7	Computer Vision	Major Elective	3
8	Advanced Artificial Intelligence and Machine Learning	Major Elective	3
Cyber Physical Systems and Assistive Robotics			
4	Introduction to Cyber-Physical Systems	Major Elective	3
5	Embedded Systems and Real-Time Operating Systems (RTOS)	Major Elective	3

5	Robotics and Programming	Major Elective	3
6	Sensors and Actuators for CPS	Major Elective	3
7	Machine Learning for Robotics and CPS	Major Elective	3
8	Assistive Robotics and Human-CPS Interaction	Major Elective	3
IoT, Big Data & Smart Cities			
4	Introduction to IoT and Sensors	Major Elective	3
5	Big Data Fundamentals	Major Elective	3
5	IoT network architecture and Communication protocols	Major Elective	3
6	Big Data Analytics and Machine Learning for IoT	Major Elective	3
7	Smart City Technologies and Applications	Major Elective	3
8	Advanced IoT Security and Privacy	Major Elective	3
Data Network & Cyber Security			
4	Network Security Foundations	Major Elective	3
5	Cyber Threat Intelligence	Major Elective	3
5	Cryptography Techniques	Major Elective	3
6	Secure Network Design and Architecture	Major Elective	3
7	Ethical Hacking and Penetration Testing	Major Elective	3
8	Cybersecurity in Advanced Computer Networks	Major Elective	3
Mobile Tech. & Web Engineering			
4	Mobile Application Development	Major Elective	3
5	Web Development Fundamentals	Major Elective	3
5	Mobile App User Experience Design	Major Elective	3
6	Advanced Web Development and Frameworks	Major Elective	3
7	Agile for Web and App development	Major Elective	3
8	Mobile Forensics	Major Elective	3
Augmented Vision, Virtual Reality & UI-UEx			
4	Introduction to Augmented Reality and Virtual Reality	Major Elective	3
5	User Interface (UI) Design and Principles for AR/VR	Major Elective	3
5	Introduction to 3D Modeling and Animation	Major Elective	3
6	Virtual Reality for Game Development	Major Elective	3
7	User Experience (UX) Design for Immersive Technologies	Major Elective	3
8	Advanced Applications of Augmented Vision and Virtual Reality	Major Elective	3
Computer Vision & Video Analytics			
4	Introduction to Computer Vision	Major Elective	3
5	Image Analysis and Video Processing	Major Elective	3
5	Machine Learning for Computer Vision	Major Elective	3
6	Object Detection and Tracking	Major Elective	3
7	Video Analytics and Applications	Major Elective	3
8	Advanced Computer Vision	Major Elective	3
Data Science and Big Data Analytics			
4	Introduction to Data Science	Major Elective	3
5	Data Mining	Major Elective	3
5	Machine Learning Fundamentals	Major Elective	3
6	Big Data Technologies and Tools	Major Elective	3
7	Advanced Data Analytics and Visualization	Major Elective	3
8	Advanced Business Analytics	Major Elective	3

Advanced Data Computing & Machine Learning			
4	Elements of Data Science and Machine Learning	Major Elective	3
5	Data Preprocessing and Feature Engineering	Major Elective	3
5	Fundamentals of Blockchain Technologies	Major Elective	3
6	Deep Learning and Neural Networks	Major Elective	3
7	Blockchain and Cryptocurrency Technologies	Major Elective	3
8	Advanced Neural Networks and Fuzzy logic	Major Elective	3
Software Development, Deployment, and Testing			
4	Data Analytics with Python	Major Elective	3
4	Devops and Cloud Native Tools	Major Elective	3
4	Business Intelligence with Power BI	Major Elective	3
4	Human-Computer Interaction(HCI) with Biofeedback Systems	Major Elective	3
5	Software Testing	Major Elective	3
5	Salesforce Platform Fundamentals	Major Elective	3
5	SAP Business Process Integration	Major Elective	3
5	ServiceNow System Administration	Major Elective	3
5	Cyber Security Principles & Threat Landscape	Major Elective	3
5	Advanced C Programming	Major Elective	3
5	Machine Learning Operations Fundamentals	Major Elective	3
5	Human-Robot Interaction(HRI), Vision and Navigation	Major Elective	3
6	Java Test Automation	Major Elective	3
6	Salesforce Administration & Configuration	Major Elective	3
6	SAP Advanced Configuration & Analytics	Major Elective	3
6	ServiceNow Advanced Workflows & Enterprise Solutions	Major Elective	3
6	Advanced Cyber Defense & Digital Forensics	Major Elective	3
6	Software Design in C++	Major Elective	3
6	Advanced MLOps: Deployment, Monitoring & Scaling	Major Elective	3
7	Project management	Major Elective	3
7	Digital Transformation	Major Elective	3
8	Full Stack Web Application Development	Major Elective	3
8	Generative AI & Large Language Models	Major Elective	3
5	Fundamentals of IoT	Major Elective	3
5	Programming in Swift	Major Elective	3
5	Application Design & Development for iOS	Major Elective	3
6	Application & Frameworks Development using Swift	Major Elective	3
6	Advanced Design Principles for iOS	Major Elective	3
6	Advanced IOT and CPS	Major Elective	3