



SCHOOL OF ENGINEERING AND SCIENCES
B.Sc. (Hons) Computer Science
2023-27 Batch

Category Wise Credit Distribution

Course Sub-category	Subcategory Credits	Category Credits	Learning hours
Ability Enhancement Courses (AEC)		8	240
University AEC	4		
School AEC	4		
Value Added Courses (VAC)		8	240
University VAC	4		
School VAC	4		
Skill Enhancement Courses (SEC)		15	450
School SEC	7		
Department SEC	8		
SEC Elective	0		
Foundation & Interdisciplinary Courses (FIC)		17	510
School FIC	17		
Department FIC			
Core + Core Elective includes Specialization (CC)		80	2400
Core	60		
Core Elective (Inc Specialization)	20		
Minor (MC) + Open Elective (OE)		15	450
Research / Design / Internship/ Project (RDIP)		17	510
Internship / Design Project / Startup / NGO	5		
Internship / Research / Thesis	12		
Total			4800

Semester Wise Course Credit Distribution Under Various Categories

Semester										
Category	S1	S2	S3	S4	S5	S6	S7	S8	Total	%age
Ability Enhancement Courses (AEC)	1(2)	1(2)	1(2)	1(2)					8	5%
Value Added Courses (UG Common) (VAC)	2(2)	1(2)	4*	4*	4*	4			8	5%
Skill Enhancement Courses (SEC)	1(3)	1(2)	1(2)	1(2)	1(3)	1(3)			15	9.4%
Foundation & Interdisciplinary Courses (FIC)	11	2(3)							17	10.6%
Major Core + Specialization (CC)		2(4)	3(4)	3(4)	4(4)	4(4)	3(4)		80	50%
Minor (MC) + Open Elective (OE)			1(3)	1(3)	1(3)	1(3)	1(3)		15	9.4%
Research / Design / Industrial Practice / Project (RDIP)							5	12	17	10%
Grand Total	18	20	19	23	22	26	20	12	160	100%

B. Sc. Computer Science Hons with Research

Semester-1							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	University AEC	Art of Listening, Speaking and Reading Skills	1	0	1	2	60
VAC	University VAC	Environmental Science	2	0	0	2	60
SEC	School SEC	Analytical Reasoning and Aptitude Skills	1	1	1	3	90
FIC	School FIC	Mathematics for the Physical World	3	0	0	3	90
FIC	School FIC	Mathematics for Sciences	3	0	0	3	90
FIC	School FIC	Fundamentals of Computing	2	0	1	3	90
FIC	School FIC	Emerging Technologies	2	0	0	2	60
Semester Total						18	540

Semester-2							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	University AEC	Effective Writing and Presentation Skills	1	0	1	2	60
VAC	University VAC	Universal Human Values and Ethics	2	0	0	2	60
SEC	School SEC	Entrepreneurial Mindset	0	0	2	2	60
FIC	School FIC	Principles of Management	3	0	0	3	90
FIC	School FIC	Psychology for Everyday Living	3	0	0	3	90
CC	Core	Data Structures	3	0	1	4	120
CC	Core	Discrete Mathematics	3	0	1	4	120
Semester Total						20	600

Semester-3							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	School AEC	Problem Solving Skills	1	0	1	2	60
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2*	0
SEC	Department/School SEC	Digital Literacy	2	0	0	2	60
CC	Core	OOP with C++	3	0	1	4	120
CC	Core	Digital Electronics	3	0	1	4	120
CC	Core	Design and Analysis of Algorithms	3	0	1	4	120
CC	Core	Linear Algebra and Differential Equations	3	1	0	4	120
OE/Minor	OE/Minor					3	90
Semester Total						23	690

Semester-4							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	School AEC	Creativity and Critical thinking Skills	1	0	1	2	60
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2*	0
SEC	Department/School SEC	Mathematical modelling of physical data				2	60
CC	Core	Computer Organization and Architecture	3	0	1	4	120
CC	Core	Mobile Application Development with Java	3	0	1	4	120
CC	Core	Database Management Systems	3	0	1	4	120
OE/Minor	OE/Minor					3	90
Semester Total						19	570

Semester-5							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2*	0
SEC	SEC Elective	Career Skills-1				3	90
CC	Core	Computer Networks	3	0	1	4	120
CC	Core	Operating Systems	3	0	1	4	120
CC	Core	Web Technology	3	0	1	4	120
CC	Core	Machine Learning	3	0	1	4	120
OE/Minor	OE/Minor					3	90
Semester Total						22	660

Semester-6							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
VAC	School VAC	Co-Curricular Activities	0	0	2	2	60
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2	60
SEC	SEC Elective	Career Skills-2				3	90
CC	Core	Software Engineering & Project Management	3	0	1	4	120
CE/SE		Specialization Elective 1	3	0	1	4	120
CE/SE		Specialization Elective 2	3	0	1	4	120
CE/SE		Core Elective 1	3	1	0	4	120
OE/Minor	OE/Minor					3	90
Semester Total						26	780

Semester-7							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
CE/SE		Specialization Elective 3	3	0	1	4	120
CE/SE		Specialization Elective 4	3	0	1	4	120
CE/SE		Core Elective 2	3	1	0	4	120
RDIP	Internship / Research / Thesis	Internship	0	0	5	5	120
OE/Minor	OE/Minor					3	90
Semester Total						20	570

Semester-8							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
RDIP	Internship / Research / Thesis	Major Project	0	0	12	12	360
Semester Total						12	360

List of Specialization Electives: Artificial Intelligence and Machine Learning

Artificial Intelligence
Digital Image Processing
Deep Learning
Principles of Soft Computing

List of Specialization Electives: Big Data Analytics

Data Warehousing and Mining
Applied Data Science
Principles of Big Data Management
Information Retrieval

List of Core Electives

Human Computer Interaction
Advanced Computer Architecture
Natural Language Processing
Computer Graphics
Advanced Data Structures and Algorithms
Distributed Operating Systems
Data and Web Mining
Complexity Theory
Software Project Management

Multimedia
Deep Learning
Advanced Database Management Systems
Fog Computing
Parallel Algorithms
Web Services
Advances in Data Mining
Social Network Analysis
Recommender Systems

Computational and Complexity Theory
Artificial Intelligence
Machine Learning on Edge Computing
Mobile and wireless security
Internet protocols and networking
Mobile application security testing
IoT security
Biometric Security
Cyber Law
Ethical Hacking
Security audit and Risk Assessment
Digital Forensics and Incident Response
Security Analytics
Multiview Geometry

Minor Program
Minor in Computer Science
Computational Problem Solving OOPS through Java Advanced Python Programming Relational Database Management Systems Network and Web Programming Project
Minor in Data Science
Machine Learning Data Analytics using Python Deep Learning Data warehousing and Mining Project
Minor in AI&ML
Machine Learning Digital Image Processing Deep Learning Soft Computing Project