

Computer Science & Engineering

General Structure (2022-26)

Semester-III						Semester-IV				
II	Introduction to IoT	2	2	3		Database Management Systems	3	2	4	
	Object Oriented Programming Concepts	3	2	4		Computer Organization and Architecture	3	0	3	
	Mathematics-III	3	0	3		Artificial Intelligence	3	0	3	
	Discrete Structure for Computer Science	3	0	3		Web Enabled Technologies (Web 3.0)	3	0	3	
	Design and Analysis of Algorithm	3	0	3		Industry Coding practice (Python & R)	2	2	3	
	Theory of Computation	3	0	3		Speech Processing	3	0	3	
	Principles of Managerial Economics	3	0	3		Data Science	3	0	3	
	CRT	0	2	1		CRT	0	2	1	
	MOOCS (Python Programming// Julia Programming)	0	0	0						
	Total No of Credits		23			Total No of Credits				23
SUMMER INTERNSHIP PROGRAM I (for Internship option only)									5	
Semester-V						Semester-VI				
III	Principal of Cryptography	3	0	3		Open Elective	3	0	3	
	Operating Systems	3	2	4		Computer Networks	3	2	4	
	Programming Language & Compiler Construction	3	0	3		Big Data Systems	3	0	3	
	Machine Learning	3	0	4		Cloud Computing	3	2	4	
	Software Engineering	3	0	3		Intelligent Transport Systems	3	0	3	
	Open Elective	3	0	3		Computer Vision	3	0	3	
	Audit Course	0	0	0		Special Project/Capstone Project	0	6	3	
	CRT	0	2	1		CRT	0	2	1	
Total No of Credits		21			Total No of Credits				24	
Semester-VII						Semester-VIII				
IV	Internship Program II /						Internship Program II /			
	Thesis & Seminar /						Thesis & Seminar /			
	Electives (4) + Professional/Discipline						Electives (4) + Professional/Discipline			
	Humanities Elective (1) (Digital Humanities)						Humanities Elective (1) (Digital Humanities)			
Total No of Credits		20/18			Total No of Credits				20/18	
Total No of Credits									177	

The Program structure is tentative, subject to change (if required).

Discipline Elective I (V Semester)				
Course Code	Course Title	L	P	U
	Advanced Java	3	0	3
	Advanced Computer Architecture	3	0	3
	Parallel Computing	3	0	3
	Blockchain Technology	3	0	3
Discipline Elective I (VI Semester)				
	Social Network Analysis	3	0	3
	Real Time Systems	3	0	3
	Human Computer Interface	3	0	3
	Combinatorial Optimization	3	0	3

Digital Humanities Electives I (VII/VIII Semester)				
Course Code	Course Title	L	P	U
	Social Innovation	3	0	3

Specialization Electives (VII/VIII Semester)

Machine Learning				
Course Code	Course Title	L	P	U
CS404	Deep Learning	3	0	3
CS405	Natural Language Processing	3	0	3
CS406	Information retrieval	3	0	3
CS407	Pattern Recognition	3	0	3

Cyber Security				
Course Code	Course Title	L	P	U
CS404	Ethical Hacking	3	0	3
CS405	Information Security	3	0	3
CS406	IoT Security	3	0	3
CS407	Cyber Security	3	0	3

Networks				
Course Code	Course Title	L	P	U
CS404	Wireless Networks	3	0	3
CS405	Network Administration	3	0	3
CS406	Network Security	3	0	3
CS407	AI in Wireless Communications	3	0	3

Advanced Computing				
Course Code	Course Title	L	P	U

CS404	High Performance Computing	3	0	3
CS405	Advanced Computer Architecture	3	0	3
CS406	Multicore Architecture	3	0	3
CS407	Parallel Computing	3	0	3

Database				
Course Code	Course Title	L	P	U
CS401	Database Administration	3	0	3
CS402	SQL & DB Applications	3	0	3
CS403	Database Security & Privacy	3	0	3
CS404	Data Wrangling	3	0	3

Updated- B.Tech (Mechatronics Engineering) Program General Structure (2022-26)

Year	Course Code	Semester-I	L	P	U	Course Code	Semester-II	L	P	U	
		Semester-III					Semester-IV				
		Introduction to IOT	3	0	3		Strength of Materials	2	2	3	
		Object Oriented Programming Concepts	2	4	4		Thermal Engineering	3	0	3	
II		Mathematics-III	3	0	3		FM and HM	3	2	4	
		Elements of Mechatronics	3	0	3		Industry Coding Practice (Python and R)	2	2	3	
		Engineering Mechanics	3	0	3		Matlab based Numerical Methods	3	0	3	
		Principles of Managerial Economics	3	0	3		Data Structures	2	4	4	
		Kinematics & Dynamics of Machinery	3	0	3		Design of Machine Elements	3	0	3	
		CRT	0	2	1		CRT	0	2	1	
Total No of Credits			20	6	23	Total No of Credits			18	12	24
SUMMER INTERNSHIP PROGRAM I (for Internship option only)										5	
		Semester-V					Semester-VI				
		Control Systems	3	0	3		Microprocessor and Micro controllers	3	0	3	
III		Sensors , Actuators and Drivers	3	2	4		Digital Humanities Elective1	3	0	3	
		Manufacturing Processes and Metrology	2	2	3		Mechatronic System Design	3	0	3	
		CAD/CAM	3	0	3		Autonomous Vehicles	3	0	3	
		Micro Electro Mechanical Systems	3	0	3		Intelligent Transport Systems	3	0	3	
		Autotronics	3	0	3		Robotics and Automation	3	0	3	
		Audit Course	0	0	0	-	Special Project /TIP/Capstone Project	0	6	3	
			CRT	0	2	1		CRT	0	2	1
Total No of Credits			17	6	20	Total No of Credits			18	8	22
		Semester-VII					Semester-VIII				
IV	IP401/	Internship Program II /Thesis				IP401/	Internship Program II /Thesis				
	-	Electives (4)+ Professional/Discipline				-	Electives (4)+ Professional/Discipline				
	-	Humanities Electives (1)				-	Humanities Electives (1)				
Total No of Credits			20/18			Total No of Credits			20/18		
Total No of Credits										174	

Digital Humanities Electives I (VI Semester)				
Course Code	Course Title	L	P	U
	Social Innovation	3	0	3

Specialization Electives (VII/VIII Semester)

Robotics				
Course Code	Course Title	L	P	U
	Advances in Robotics	3	0	3
	Haptics	3	0	3
	Computational Motion Planning	3	0	3
	Humanoids	3	0	3
	Human Robot Interaction (HRI)	3	0	3
	Mobile Robotics	3	0	3
	Unmanned Aerial Vehicles	3	0	3

Bio-Robotics				
Course Code	Course Title	L	P	U
	Medical Devices	3	0	3
	Tissue Modelling	3	0	3
	Medical Image Processing	3	0	3
	Cognitive Robotics	3	0	3
	Surgical Robots	3	0	3
	Machine Perception	3	0	3

Medical Robotics				
Course Code	Course Title	L	P	U
	Medical Devices	3	0	3
	Tissue Modelling	3	0	3
	Medical Image Processing	3	0	3
	Cognitive Robotics	3	0	3
	Surgical Robots	3	0	3
	Machine Perception	3	0	3

Mechatronics				
Course Code	Course Title	L	P	U

	Nano Electro Mechanical Systems	3	0	3
	Smart Materials	3	0	3
	CNC Technology	3	0	3
	Computer Integrated Manufacturing	3	0	3
	Hydraulic and Pneumatic Systems	3	0	3

Humanities Electives				
Course Code	Course Title	L	P	U
	Dynamics of Social Change	3	0	3
	Introduction to Psychology	3	0	3
	Heritage of India	3	0	3
	Modern Political Science	3	0	3
	Public Administration	3	0	3
	Professional Ethics	3	0	3