



SCHOOL OF ENGINEERING AND SCIENCES
B. Tech Mechanical Engineering
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	5		
Department SEC	4		
SEC Elective	6		
Foundation/ Interdisciplinary courses (FIC)		19	570
School FIC	19		
Department FIC			
Core + Core Elective including Specialization (CC)		81	2430
Core	66		
Core Elective (Inc Specialization)	15		
Minor (MC) + Open Elective (OE)		15	450
Research / Design / Internship/ Project (RDIP)			480
Internship / Design Project / Startup / NGO	4	16	
Internship / Research / Thesis	12		
Total		162	4860

Semester Wise Course Credit Distribution Under Various Categories

Semester										
Category	S1	S2	S3	S4	S5	S6	S7	S8	Total	%age
Ability Enhancement Courses (AEC)	2	2	2	2					8	5%
Value Added Courses (UG Common) (VAC)	2	2				4			8	5%
Skill Enhancement Courses (SEC)	3	2	2	2	3	3			15	9.20%
Foundation & Interdisciplinary Core (FIC)	12	7							19	12.30%
Major Core + Specialization (CC)		8	16	17	15	15	10		81	50%
Minor (MC) + Open Elective (OE)			3	3	3	3	3		15	9.20%
Research / Design / Industrial Practice / Project (RDIP)					2		2	12	16	9.50%
Grand Total	19	21	23	24	23	25	15	12	162	

B. Tech. - Mechanical Engineering

Category	Subcategory	Course Name	L	T/D	P/Pr	C	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	Principles of Economics and Management	2	0	1	3	90
FIC	School	Calculus for Engineers	3	0	0	3	90
FIC	School	Fundamentals of computing and Programming Using C	3	0	1	4	120
FIC	School	Emerging Technologies	2	0	0	2	60
		Total				19	570

Semester - 2							
Category	Subcategory	Course Name	L	T/D	P/Pr	C	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	Linear Algebra and Differential Equations	3	0	0	3	90
FIC	School	Data Structures	3	0	1	4	120
CC	Core	Engineering Mechanics	2	0	1	3	90
CC	Core	Engineering Graphics and CAD	2	1	1	4	120
CC	Core	Workshop Practice	0	0	2	1	30
		Total				21	630

Semester - 3							
Category	Subcategory	Course Name	L	T/D	P/Pr	C	Learning Hours
AEC	School	Problem Solving skills	0	1	1	2	60
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	Dept	Design Thinking and Product Design	1	1	0	2	60
CC	Core	Mechanics of Materials	2	1	1	4	120
CC	Core	Thermodynamics	2	1	1	4	120
CC	Core	Material Science	3	0	1	4	120
CC	Core	Foundations of Basic Electrical and Electronics Engineering	2	1	1	4	120
OE	OE/Minor		3	0	0	3	90
		Total				23	660

Semester - 4							
Category	Subcategory	Course Name	L	T/D	P/Pr	C	Learning Hours
AEC	School	Creativity and Critical Thinking Skills	2	0	0	2	60
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	Department	Digital Manufacturing and Industry 4.0	1	1	0	2	60
CC	Core	Design of Machine Elements	2	1	1	4	120
CC	Core	Fluid Mechanics	3	0	1	4	120
CC	Core	Kinematics of Machines	3	0	1	4	120
CC	Core	Digital product development-3D Printing	1	0	1	2	120
CC	Core	Industrial Engineering and Operation Research	2	1	0	3	90
OE	OE/Minor		3	0	0	3	90
		Total				24	720

Semester - 5							
Category	Subcategory	Course Name	L	T/D	P/Pr	C	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	School	Career Skills - I Elective	3	0	0	3	90
CC	Core	Fluid Machinery	1	0	1	2	120
CC	Core	Numerical Methods	2	1	1	4	120
CC	Core	IoT and Digital Twins for Mechanical Engineering	2	0	0	2	60
RDIP	University	Mini Project	0	0	1	2	60
CC	Core	Core /Specialization Elective-1	2	1	0	3	120
CC	Core	Manufacturing Technology	3	0	1	4	90
OE	OE/Minor		3	0	0	3	90
		Total	18	0	16	23	690

Semester - 6							
Category	Subcategory	Course Name	L	T/D	P/Pr	C	Learning Hours
SEC	School - Elective	Career Skills - II Elective	3	0	0	3	90
VAC	School VAC	Co-Curricular Activities	0	0	2	2	60
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2	60
CC	Core Elective	Core Elective/Specialization - 2	3	0	0	3	90
CC	Core	Heat and Mass transfer	3	0	1	4	120
CC	Core	Measurements and Instrumentation	1	0	1	2	60
CC	Core	AI and ML for Mechanical Engineers	2	0	0	2	60
CC	Core	Dynamics and Control	3	0	1	4	120
OE	OE/Minor		3	0	0	3	90
		Total	18	0	6	25	750

Semester - 7							
Category	Subcategory	Course Name	L	T/D	P/Pr	C	Learning Hours
CC	Core	Technical Seminar	0	1	0	1	30
CC	Core	Core/Specialization elective 3	2	1	0	3	90
CC	Core	Core/Specialization elective 4	2	1	0	3	90
CC	Core	Core /Specialization elective- 5	2	1	0	3	90
RDIP	Internship / Project	Internship	0	0	2	2	120
OE	OE/Minor		3	0	0	3	90
		Total				15	360

Semester - 8							
Category	Subcategory	Course Name	L	T/D	P/Pr	C	Learning Hours
RDIP	Internship / Project	Major Project/Research/ Industry	0	0	12	12	360
		Total				12	360
		Total Credits				162	4860

Specialization: Robotics and Automation- (Any 5)

- 1 Introduction to Robotics
- 2 Mechatronics
- 3 Flexible manufacturing systems and Automation
- 4 AI for Robotics
- 5 Machine learning in Robotics
- 6 Advanced Robotics
- 7 Automation in Manufacturing

Specialization: Additive manufacturing (Any 5)

- 1 CAD CAM
- 2 Laser based AM
- 3 Design and modeling aspect of additive manufacturing
- 4 Digital manufacturing
- 5 Materials for additive manufacturing
- 6 Bioprinting

Specialization: Automotive Engineering (Any 5)

- 1 Combustion engineering
- 2 Automotive engineering
- 3 Electric vehicle technology
- 4 Transmission systems
- 5 Noise and vibration-NVH
- 6 Fuel cell technology

Core Electives

- 1 Artificial Intelligence for Mechanical Engineers
- 2 Machine Learning for Mechanical Engineers
- 3 Refrigeration and air conditioning
- 4 New Product Development
- 5 Sustainable Product Development / Circular Product Development
- 6 Augmented Reality / Virtual Reality for Mechanical Engineers
- 7 CAD CAM
- 8 Multibody dynamics
- 9 Additive manufacturing
- 10 Thermal power engineering
- 11 Combustion engineering
- 12 Automotive engineering
- 13 Robotics
- 14 Mechatronics
- 15 Industrial engineering
- 16 Introduction to electric vehicles
- 17 Surface engineering
- 18 Compressible flow
- 19 Operation research
- 20 Nanotechnology
- 21 Flexible manufacturing system
- 22 Combustion engineering
- 23 Gas turbine technology
- 24 Fuel cell technology
- 25 Vibration and noise
- 26 Thermal design of electronic equipment
- 27 Advanced material
- 28 Mechanics of composite material
- 29 Computational fluid dynamics
- 30 Non-conventional manufacturing
- 31 Multi-Physics Modeling and Analysis
- 32 Hydrogen Engines
- 33 Fossil-Free Energy Technology
- 34 Construction Equipment Design

Minor Program: Robotics

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| <ol style="list-style-type: none">1 Introduction to Robotics2 Mechatronics3 AI for Robotics4 Dynamics and control5 Advanced Robotics6 Flexible manufacturing system |
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Open Electives:

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| <ol style="list-style-type: none">1. Introduction to industrial engineering2. Introduction to Additive manufacturing3. Introduction to aircraft systems4. Introduction to Robotics5. Surface engineering6. Smart materials and systems7. Mechanical behavior of materials8. Numerical methods |
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