

**Department of Mechanical
Engineering**

**B.Tech. Mechanical Engineering
Curriculum**

*(Applicable to the students admitted from AY:
2025*



**School of Engineering and Sciences
SRM University AP, Andhra Pradesh**

ABBREVIATIONS	
AEC	Ability Enhancement Courses
VAC	Value Added Courses
SEC	Skill Enhancement Courses
FIC	Foundation & Interdisciplinary Courses
OE	Open Elective
RDIP	Research / Design / Industrial Practice / Project / Thesis / Internship
CE	Core Elective
CC	Core Course
SE	Stream Elective
TE	Technical Elective

SEMESTER - I							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	AEC	U AEC	Art of Listening, Speaking and Reading Skills	1	0	1	2
2	VAC	U VAC	Environmental Science	2	0	0	2
3	SEC	S SEC	Analytical Reasoning and Aptitude Skills- I	1	0	1	2
4	FIC	S FIC	Economics for Engineers	3	0	0	3
5	FIC	S FIC	Calculus for Engineers	3	0	0	3
6	FIC	S FIC	Fundamentals of computing and Programming in C	3	0	1	4
7	FIC	S FIC	Foundations of Engineering Modelling and Applications	1	0	1	2
Semester Total				15	1	3	18

SEMESTER – II							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	AEC	U AEC	Effective Writing and Presentation Skills	1	0	1	2
2	SEC	U SEC	Introduction to MATLAB & Python programming	1	0	1	2
3	VAC	U VAC	Universal Human Values and Ethics	1	1	0	2
4	FIC	S FIC	Linear Algebra and Differential Equations	3	0	0	3
5	FIC	D FIC	Foundations of Electrical and Electronics Engineering	2	0	1	3
6	Core	CC	Engineering Mechanics	2	1	0	3
7	Core	CC	Engineering Graphics and CAD	2	1	1	4
8	Core	CC	Workshop Practice	0	0	1	1
Semester Total				12	3	5	20

SEMESTER – III							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	AEC	S AEC	Problem Solving Skills	1	0	1	2
2	VAC	U VAC	Co-Curricular Activities	0	0	2	2*
3	VAC	U VAC	Community Service and Social Responsibility	0	0	2	2*
4	SEC	D SEC	Design Thinking and Product Design	1	0	1	2
5	Core	CC	Mechanics of Materials	2	1	1	4
6	Core	CC	Thermodynamics	2	1	1	4
7	Core	CC	Material Science	3	0	1	4
8	SEC	S SEC	Data Structures	2	0	1	3
9	Elective	OE	Open Elective / Minor	3	0	0	3
Semester Total				14	2	10	22

SEMESTER – IV							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	AEC	S AEC	Creativity and Critical Thinking Skills	1	0	1	2
2	VAC	U VAC	Co-Curricular Activities	0	0	2	2*
3	SEC	D SEC	Introduction to manufacturing technology and Industry 4.0.	0	1	1	2
4	Core	CC	Design of Machine Elements	2	1	1	4
5	Core	CC	Fluid Mechanics	3	0	1	4
6	Core	CC	Kinematics of Machines	3	0	1	4
7	Core	CC	Digital product development-3D Printing	1	0	1	2
8	Core	CC	Industrial Engineering and Operation Research	2	1	0	3
9	Elective	OE	Open Elective / Minor	3	0	0	3
Semester Total				15	3	6	24

SEMESTER – V							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	VAC	U VAC	Co-Curricular Activities	0	0	2	2*
2	SEC	E SEC	Career Skills – I	3	0	0	3
3	Core	CC	Turbo Machinery	2	0	1	3
4	Core	CC	Computational Methods	2	1	1	4
5	Core	CC	ML for mechanical engineers	3	0	0	3
6	Core	CC	Machine Tool and Manufacturing	3	0	1	4
7	Elective	CE	Core/Specialization Elective	2	1	0	3
8	Elective	OE	Open Elective / Minor	3	0	0	3
9	RDIP	RDIP	Mini Project	0	0	2	2
10	RDIP	RDIP	Internship	0	0	2	2
Semester Total				18	2	7	27

SEMESTER – VI							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	VAC	U VAC	Co-Curricular Activities	0	0	2	2
2	SEC	E SEC	Introduction to CFD	3	0	1	4
3	Core	CC	Heat and Mass Transfer	3	0	1	4
4	Core	CC	Measurements and Instrumentation	2	0	1	3
5	Core	CC	Dynamics and Control	3	0	1	4
6	Elective	CE	Core / Specialization Elective	2	1	0	3
7	Elective	OE	Open Elective / Minor	3	0	0	3
Semester Total				16	1	8	23

SEMESTER - VII							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE	Core/Specialization Elective	2	1	0	3
2	Elective	CE	Core/Specialization Elective	2	1	0	3
3	Elective	CE	Core/Specialization Elective	2	1	0	3
4	Elective	OE	Open Elective / Minor	3	0	0	3
5	RDIP	RDIP	Technical Seminar	0	0	1	1
Semester Total				9	3	1	13

SEMESTER - VIII							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	RDIP	RDIP	Major Project	0	0	12	12
Semester Total				0	0	12	12

Specialization - Robotics and Automation							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE/SE	Introduction to Robotics	2	1	0	3
2	Elective	CE/SE	Mechatronics	2	1	0	3
3	Elective	CE/SE	Flexible manufacturing systems and Automation	2	1	0	3
4	Elective	CE/SE	AI for Robotics	2	1	0	3
5	Elective	CE/SE	Machine learning in Robotics	2	1	0	3
6	Elective	CE/SE	Advanced Robotics	2	1	0	3
7	Elective	CE/SE	Automation in Manufacturing	2	1	0	3

Specialization: Additive Manufacturing							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE/SE	CAD CAM	2	1	0	3
2	Elective	CE/SE	Laser based AM	2	1	0	3
3	Elective	CE/SE	Design and modeling aspect of additive manufacturing	2	1	0	3
4	Elective	CE/SE	Digital manufacturing	2	1	0	3
5	Elective	CE/SE	Materials for additive manufacturing	2	1	0	3
6	Elective	CE/SE	Bioprinting	2	1	0	3

Specialization: Automotive Engineering							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE/SE	Fundamentals of Combustion Technology	2	1	0	3
2	Elective	CE/SE	Introduction to Automobile Engineering	2	1	0	3
3	Elective	CE/SE	Electric vehicle technology	2	1	0	3
4	Elective	CE/SE	Heavy Vehicle Technology	2	1	0	3
5	Elective	CE/SE	Noise and Vibration	2	1	0	3
6	Elective	CE/SE	Vehicle Dynamics	3	0	0	3

Core Elective: Automotive Engineering							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE	Thermal power engineering	2	1	0	3
2	Elective	CE	Refrigeration and air conditioning	2	1	0	3
3	Elective	CE	Thermal design of electronic equipment	2	1	0	3
4	Elective	CE	Computational fluid dynamics	1	1	1	3

Core Elective: Robotics and Automation							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE	Artificial Intelligence for Mechanical Engineers	2	0	1	3
2	Elective	CE	Machine Learning for Mechanical Engineers	2	1	0	3
3	Elective	CE	Multibody dynamics	2	1	0	3

4	Elective	CE	Surface engineering	2	0	1	3
5	Elective	CE	Operation research	2	1	0	3
6	Elective	CE	Nanotechnology	2	1	0	3
7	Elective	CE	Advanced material	2	0	1	3
8	Elective	CE	Mechanics of composite material	2	1	0	3
9	Elective	CE	Non-conventional manufacturing	2	1	0	3
10	Elective	CE	Multi-Physics Modeling and Analysis	2	0	1	3
11	Elective	CE	Introduction to Additive manufacturing	2	1	0	3

Minor: Robotics							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	OE	OE	Introduction to Robotics	3	0	0	3
2	OE	OE	Mechatronics	3	0	0	3
3	OE	OE	AI for Robotics	3	0	0	3
4	OE	OE	Dynamics and control	3	0	0	3
5	OE	OE	Advanced Robotics	3	0	0	3
6	OE	OE	Flexible manufacturing system	3	0	0	3

Open Electives							
S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	OE	OE	Introduction to industrial engineering	3	0	0	3
2	OE	OE	Introduction to Additive manufacturing	3	0	0	3
3	OE	OE	Introduction to aircraft systems	3	0	0	3
4	OE	OE	Introduction to Robotics	3	0	0	3
5	OE	OE	Surface engineering	3	0	0	3
6	OE	OE	Smart materials and systems	3	0	0	3
7	OE	OE	Mechanical behavior of materials	3	0	0	3
8	OE	OE	Numerical methods	3	0	0	3