

B. Tech.

MECHANICAL AND MECHATRONICS ENGINEERING (ADDITIVE MANUFACTURING)

FIRST SEMESTER

Sr. No.	Course Code	Department	Title	Contact Hours				Credits
				L	T	P	Total	
1.	MA102	MATHS	Engineering Mathematics - 1	3	1	-	4	4
2.	PH101	PHY	Engineering Physics-1	3	1	-	4	4
3.	HS101	HSS	English	2	1	-	3	3
4.	CS101	CSE	Computer Programming	3	1	-	4	4
5.	PH201	PHY	Engineering Physics Lab-1	-	-	2	2	1
6.	CS201	CSE	Computer Programming Lab	-	-	4	4	2
7.	ME201	ME	Workshop Practices	-	-	3	3	1.5
8.		HSS	Value Added Course-1	2	-	-	2	-
			TOTAL				24	19.5

SECOND SEMESTER

Sr. No.	Course Code	Department	Title	Contact Hours				Credits
				L	T	P	Total	
1.	HS104	HSS	Life Skills and Effective Communication	1	1	-	2	2
2.	MA103	Maths	Engineering Mathematics-2	3	1	-	4	4
3.	CH101	Chemistry	Engineering Chemistry	3	1	-	4	4
4.	EC102	ECE	Basic Electrical and Electronics	3	1	-	4	4
5.	ME101	ME	Engineering Mechanics	3	1	-	4	4
6.	CH201	Chemistry	Engineering Chemistry Lab	-	-	2	2	1

7.	EC202	ECE	Basic Electrical and Electronics Lab	-	-	2	2	1
8.	ME202	ME	Engineering Mechanics Lab	-	-	2	2	1
9.	ME203	ME	Engineering Drawing and Design Lab			3	3	1.5
			TOTAL				27	22.5

THIRD SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
			Mathematics-3 (Transforms and Partial Differential Equations, Probability and Statistics)	3	1	-	4	4
1.	MEC	ME102	Basic Thermodynamics	3	1	-	4	4
2.	MEC	ME103	Strength of Materials	3	1	-	4	4
3.	MEC		Manufacturing Technology	3	1	-	4	4
4.	MEC	ME204	Basic Thermodynamics Lab	-	-	2	2	1
5.	MEC	ME205	Strength of Materials Lab	-	-	2	2	1
6.	MEC		Manufacturing Technology Lab	-	-	2	2	1
			Programming for problem solving (Python)	-	-	2	2	1
	HSS		Value Added Course-2	2	-	-	2	-
			TOTAL	14			26	20

FOURTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	HSS		HSS Elective - 1	2	1	-	3	3
3.	MEC	ME106	Fluid Mechanics	3	1	-	4	4
	MEC	ME105	Theory of Machines	3	1	-	4	4

			Computer Aided Design	3	-	-	3	3
			Theory of Control Systems	3	-	-	3	3
5.	MEC	GE101	Environmental Science	2	-	-	2	2
	MEC	ME207	Theory of Machines Lab	-	-	2	2	1
			Computer Aided Design Lab	-	-	2	2	1
6.	MEC	ME208	Fluid Mechanics Lab	-	-	2	2	1
			TOTAL	16	3	6	25	22

*Students will undergo Summer Training during vacation after IVth Semester (optional).

FIFTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	HSS		HSS Elective-2	3		-	3	3
4.	MEC		Engineering Materials	3	-	-	3	3
	MEC	ME110	Design of Machine Elements	3	-	-	3	3
			Sensors and Instrumentation	3	-	-	3	3
			Computer Integrated Manufacturing	3	-	-	3	3
5.	MEC	ME213	Minor Project – 1			4	4	2
	MEC	ME20214	Design of Machine Elements Lab	-	-	2	2	1
			Sensors and Instrumentation Lab	-	-	2	2	1
			Computer Integrated Manufacturing Lab	-	-	2	2	1
			Design Thinking Lab	-	-	2	2	1
10	MEC	ME002	Verbal and non-verbal reasoning-1	3	-	-	3	Qualifying
			TOTAL				30	21

SIXTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
	HSS		HSS Elective - 3	2	1		3	3

			Basics of Additive Manufacturing	3	-	-	3	3
			Micro controller and Applications	3	-	-	3	3
			Digital Signals and Image Processing	3	-	-	3	3
2.	MEC		Discipline Elective – 1	3	-	-	3	3
5.			Value Added Course-II	3	-	-	3	Qualifying
			Basics of Additive Manufacturing Lab	-	-	2	2	1
			Micro controller and Applications Lab	-	-	2	2	1
			Digital Signals and Image Processing Lab	-	-	2	2	1
7.	MEC	ME216	Minor Project-2	-	-	4	4	2
			TOTAL				28	20

Note: Students will undergo 6 weeks Industrial Training during Summer Vacation after 6th Semester (Compulsory).

SEVENTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
			Robotics Engineering	3	-	-	3	3
			Additive Manufacturing Applications	3	-	-	3	3
1.	MEC		Discipline Elective – 2	3	-	-	3	3
4.			Open Elective - 1	3	-	-	3	3
			Robotics Engineering Lab	-	-	2	2	1
			Additive Manufacturing Applications Lab	-	-	2	2	1
5.	MEC	ME217	Major Project Part-1	-	-	8	8	4
6.	MEC	ME004	Summer Training Viva	-	-	-	-	Qualifying
			TOTAL				24	18

EIGHTH SEMESTER

Sr.	Department	Course No.	Title	Contact Hours	Credits
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No.				L	T	P	Total	
			Discipline Elective – 3	3		-	3	3
1.	MEC		Discipline Elective – 4	3			3	3
3.	Engg Branch		Open Elective -2	3		-	3	3
4.	MEC	ME218	Major Project Part-2	-	-	16	16	8
			TOTAL				25	17

Total Credits for B. Tech. –160

List of Discipline Electives

Subject code	Subject name
ME311	Operations Research
ME314	Finite Element Technique
ME330	Optimization Methods in Engineering
ME312	Laser Material Processing
ME317	Statistical Quality Control
ME320	Production and Operation Management
ME306	Engineering Data Analytics
ME331	Supply Chain Management
	Hydraulics and Pneumatics
	Maintenance and Reliability Engineering
	Electrical Machines and Power Systems
	Programmable logic controller
	Embedded System
	Industrial Electronics
	Artificial Intelligence
	Machine Learning
	Data Structure and Algorithm
	Reverse Engineering
	Cyber Security and Computer Network
	Introduction to Blockchain Technologies

HSS Electives:

1. Concept of Financial Management: HS302
2. Knowledge Management: HS303
3. Concept of Digital Marketing: HS304
4. Concept of Marketing Management: HS306
5. Entrepreneurship and Small Business

Value Added Course

1. Human Values and Professional Ethics: HS001
2. Professional communication Practice: HS002
3. Concept of Project Management: HS003
4. Indian Constitution & Traditional Knowledge: HS004
5. Verbal and non-verbal reasoning-1
6. Verbal and non-verbal reasoning-2