



JOY UNIVERSITY
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School of Computational Intelligence
Department of Mechanical Engineering
B. Tech Mechanical Engineering - Programme Structure
Semester I

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.	BTME1111	Mathematics - I	3	1	0	4	4
2.	BTME1112	Fundamentals of Computational Physics	3	1	0	4	4
3.	AEEN1111	Effective Communication	2	0	0	2	2
4.	BTME1113	Fundamentals of Computing	3	0	0	3	3
5.	BTME1114	Engineering Mechanics	2	1	0	3	3
6.	BTME1115	Introduction to Programming	3	0	0	3	3
7.	BTME1116	Engineering Drawing	1	1	2	4	3
8.	BTME2111	Fundamentals of Computing Lab	0	0	2	2	1
9.	BTME2112	Programming Lab	0	0	2	2	1
		TOTAL	16	5	6	27	24

Semester II

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs/ Wk	Credits
1.	BTME1121	Mathematics - II	3	1	0	4	4
2.	AEEV1121	Environmental Science	2	0	0	2	2
3.	BTME1122	Fundamentals of Instrumentation & Process Control	3	1	0	4	4
4.	BTME1123	Fundamentals of Electrical & Electronics Engineering	3	0	0	3	3
5.	BTME1124	Fundamentals of Mechanical and Civil Engineering	3	1	0	4	4
6.	BTME1125	Principles of Management and Engineering Economics	3	0	0	3	3
7.	BTME2121	Engineering Realization	0	1	2	3	2
8.	BTME2122	Computer Hardware Lab	0	0	2	2	1
9.	BTME2123	Engineering Visualization	0	0	2	2	1
		TOTAL	16	5	6	27	24

Semester III

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs/ Wk	Credits
1.	BTME1211	Mathematics - III	2	1	0	3	3
2.	BTME1212	Materials Engineering And Metallurgy	3	0	0	3	3
3.	BTME1213	Fluid Mechanics	2	1	0	3	3
4.	BTME1214	Thermodynamics	2	1	0	3	3
5.	BTME1215	Fundamentals of Machine Learning	2	1	0	3	3
6.	BTME1216	Mechanics of Solids	2	1	0	3	3
7.	BTME2211	Material Testing Laboratory	0	0	3	3	1.5
8.	BTME2212	Fluid Mechanics Laboratory	0	0	3	3	1.5
9.	BTME2213	Machine Learning Lab	0	0	2	2	1
10.	BTME2214	Entrepreneurship Development	0	0	2	2	1
		TOTAL	13	5	10	28	23

Semester IV

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs/ Wk	Credits
1.	BTME1221	Kinematics and Dynamics of Mechanisms	2	1	0	3	3
2.	BTME1222	Data Structure and Algorithm for Engineers	2	1	0	3	3
3.	BTME1223	Manufacturing Processes	2	1	0	3	3
4.	BTME1224	Heat & Mass Transport Analysis	2	1	0	3	3
5.	BTME1225	Hydraulic Machines	2	1	0	3	3
6.	BTME1226	Metrology and Measurements	3	0	0	3	3
7.	BTME2221	Heat Transfer Laboratory	0	0	3	3	1.5
8.	BTME2222	Data Structure and Algorithm Lab	0	0	2	2	1
9.	BTME2223	Manufacturing Laboratory	0	0	2	2	1
10.	BTME2224	Hydraulic Machines Laboratory	0	0	3	3	1.5
		TOTAL	13	5	10	28	23

Semester V

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs/ Wk	Credits
1.	BTME1311	IC Engines and Gas Turbines	3	0	0	3	3
2.	BTME1312	Design of Machine Elements	2	1	0	3	3
3.	BTME1313	Mechatronics System in Engineering	3	0	0	3	3
4.	BTME1314	Finite Element Methods	2	1	0	3	3
5.	PEME131#	Elective-I (<i>Programme Specific Elective</i>)	3	0	0	3	3
6.	PEME131#	Elective-II (<i>Programme Specific Elective</i>)	3	0	0	3	3
7.	BTME2311	IC Engines and Gas Turbines Laboratory	0	0	3	3	1.5
8.	BTME2312	Mechatronics & Modern Control Laboratory	0	0	2	2	1
9.	BTME2313	Finite Element Methods Lab	0	0	2	2	1
10.	BTME2314	Metrology and Measurements Laboratory	0	0	3	3	1.5
		TOTAL	16	2	10	28	23

Semester VI

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.	BTME1321	Robotics and Automation	3	0	0	3	3
2.	BTME1322	Hybrid and Electric Vehicles	3	0	0	3	3
3.	BTME1323	Additive Manufacturing	3	0	0	3	3
4.	BTME1324	Computer Integrated Manufacturing	2	1	0	3	3
5.	PEME132#	Elective-III (<i>Programme Specific Elective</i>)	3	0	0	3	3
6.	PEME132#	Elective-IV (<i>Programme Specific Elective</i>)	3	0	0	3	3
7.	BTME2321	CIM Laboratory	0	0	2	2	1
8.	BTME2322	Hybrid And Electric Vehicles Laboratory	0	0	2	2	1
9.	BTME2323	Additive Manufacturing Laboratory	0	0	3	3	1.5
10.	BTME2324	Mechanical Engineering Laboratory	0	0	3	3	1.5
TOTAL			17	1	10	28	23

Semester VII

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.	BTME1411	Supply Chain Management	2	1	0	3	3
2.	BTME1412	Industrial Engineering & Operation Research	2	1	0	3	3
3.	GEME141#	Elective-V (<i>Global Elective</i>)	3	0	0	3	3
4.	GEME141#	Elective-VI (<i>Global Elective</i>)	3	0	0	3	3
5.	BTME3411	Project- Phase I	-	-	-	-	4
6.	BTME3412	Industrial/ Research Internship	-	-	-	-	3
7.	BTME3413	Seminar	-	-	-	-	3
TOTAL			10	2	0	12	22

Semester VIII

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.	BTME1421	Professional Ethics	3	0	0	3	3
2.	GEME142#	Elective-VII (<i>Global Elective</i>)	3	0	0	3	3
3.	GEME142#	Elective-VIII (<i>Global Elective</i>)	3	0	0	3	3
4.	GEME142#	Elective-IX (<i>Global Elective</i>)	3	0	0	3	3
5.	BTME3421	Project- Phase II	-	-	-	-	8
TOTAL			12	0	0	12	20

#Out of the 9 electives in the programme, 4 are programme specific electives and 2 should be Global Electives offered by Department of Mechanical Engineering.

B. Tech Mechanical Engineering – Programme Specific Electives							
Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Credits
1	PEME1311	Tool Design	2	1	0	3	3
2	PEME1312	Cryogenics	2	1	0	3	3
3	PEME1313	Refrigeration and Air Conditioning	2	1	0	3	3
4	PEME1314	Non Traditional Manufacturing Processes	2	1	0	3	3
5	PEME1315	Power Plant Engineering	3	0	0	3	3
6	PEME1316	Vibration Engineering	2	1	0	3	3
7	PEME1321	Micro and Nano manufacturing	2	1	0	3	3
8	PEME1322	Gas Dynamics	2	1	0	3	3
9	PEME1323	Computational Fluid Mechanics	2	1	0	3	3
10	PEME1324	Material Characterization Techniques	3	0	0	3	3
11	PEME1325	Engineering Failure Analysis	2	1	0	3	3
12	PEME1326	Automobile Engineering	3	0	0	3	3

Global Electives – Department of Mechanical Engineering							
Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Credits
1	GEME1411	Electric and Hybrid Vehicles	3	0	0	3	3
2	GEME1412	Digital and Smart Manufacturing	3	0	0	3	3
3	GEME1413	Digital Image Processing	2	1	0	3	3
4	GEME1414	Engineering System Modeling & Simulation	2	1	0	3	3
5	GEME1421	Reliability Engineering	2	1	0	3	3
6	GEME1422	Project Management	2	1	0	3	3
7	GEME1423	Industrial Engineering	2	1	0	3	3
8	GEME1424	Artificial Intelligence in Robotics & Automation	2	1	0	3	3
9	GEME1425	Human Computer Interaction	2	1	0	3	3
10	GEME1426	Operations Research	2	1	0	3	3

Credit Summary

Semesters	Credits
Semester- I	24
Semester- II	24
Semester- III	23
Semester- IV	23
Semester- V	23
Semester- VI	23
Semester- VII	22
Semester VIII	20
Total	182