

Department of Mechanical Engineering
M.Tech Computational Engineering for Mechanical Systems

Semester 1

S No	Course No	Course Name	L	T	E	P	O	C
1	ME54xx	Scientific Computing using Python	3	0	0	3	6	12
2	ME5041	Data Science for Mechanical Engineers	3	1	0	0	6	10
3	ME5204	Finite Element Analysis	3	0	0	0	6	9
4		Professional Elective 1	3	0	0	0	6	9
5		Professional Elective 2	3	0	0	0	6	9
6	ME548x	Geometric Modelling & Scientific Computing Lab	0	0	0	0	3	3
		Credits for semester 1						52

Semester 2

S No	Course No	Course Name	L	T	E	P	O	C
1	ME54Xx	Finite Volume Method in CFD	3	0	0	0	6	9
2	ME54xx	Data structures and algorithms	3	0	0	0	6	9
3	ME54xx	Systems-based modeling and design	3	1	0	0	6	10
4		Professional Elective 3	3	0	0	0	6	9
5		Professional Elective 4	3	0	0	0	6	9
6	ME548x	Mechanical Systems Simulation Lab	1	0	0	3	2	6
		Soft Skills	3	0	0	0	0	3
		Credits for semester 2						55

Summer

S No	Course No	Course Name	L	T	E	P	O	C
1	ME6496	Project Phase I	0	0	0	0	20	20
		Credits for summer						20

Semester 3

S No	Course No	Course Name	L	T	E	P	O	C
1	ID5130	Parallel scientific computing	3	0	0	0	6	9
2	ME6497	Project Phase II	0	0	0	0	26	26
		Credits for semester 3						35

Semester 4

S No	Course No	Course Name	L	T	E	P	O	C
1	ME6498	Project Phase III	0	0	0	0	40	40
		Credits for semester 3						40

Semester	1	2	Summer	3	4	Total
Credits	52	55	20	35	40	202

List of Electives

Semester 1

S No	Course No	Course Name	L	T	E	P	O	C
1	ME7223	Optimization methods for mechanical design	3	0	0	0	6	9
2	ME5203	Advanced Mechanics of Solids	3	0	0	0	6	9
3	ME5205	Theory of Vibrations	3	0	0	0	6	9
4	ME5103	Incompressible fluid flow	3	0	0	0	6	9
5	ME5101	Advanced heat transfer	3	0	0	0	6	9
6	ME5307	Modelling and Simulation in Manufacturing	3	0	0	0	6	9

Semester 2

S No	Course No	Course Name	L	T	E	P	O	C
1	ME7230	Applied finite element analysis	3	0	0	0	6	9
2	ME7023	Foundation of computational materials modeling	3	0	0	0	6	9
3	ME6242	Advanced Methods in Vibration**	3	0	0	0	6	9
4	AS5401	Data-driven modeling of complex aerospace systems and fluid flows	3	0	0	0	6	9
5	ME6355	Topology optimization	3	0	0	0	6	9

Semester Agnostic

S No	Course No	Course Name	L	T	E	P	O	C
1	MA6270	Numerical solutions of partial differential equations	3	0	0	0	6	9
2	ME5303	CAD in manufacturing	3	0	0	0	6	9
3	ME6355	Topology optimization	3	0	0	0	6	9
4	MA5540	Probability and Statistics	3	0	0	0	6	9
5	MA5710	Mathematical modeling in industry	3	0	0	0	6	9
6	MA5895	Numerical optimization	3	0	0	0	6	9