

**Program Articulation Matrix (Mapping of Courses with POs)**

S. No	Course Code	Course Name	Category	L	T	P	S	Cr	PO												PSO	
									1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	20UC1101	Integrated Professional English	HSS	0	0	4	0	2									1	1				
2	20UC1202	English Proficiency	HSS	0	0	4	0	2								1				1		
3	21UC2103	Essential Skills for Employability	HSS	0	0	4	0	2		1			1									
4	21UC2204	Corporate Readiness Skills	HSS	0	0	4	0	2		1			1									
5	21UC0010	Universal Human Values & Professional Ethics-I	HSS	2	0	0	0	2		1			1									
6	20UC0007	Indian Heritage and Culture	HSS	2	0	0	0	0	1													
7	21UC0008	Indian Constitution	HSS	2	0	0	0	0												1		
8	20UC0009	Ecology & Environment	HSS	2	0	0	0	0						2						1		
9	21UC0011	Gender Sensitization	HSS	2	0	0	0	2								2						
10	20MT1101	Mathematics for Computing	BS	2	2	0	2	4.5											2	2		
11	21MT2102	Mathematics for Engineers	BS	2	1	0	0	3	2													
12	21ME2209	Numerical Computation for Mechanical Engineers	BS	3	0	2	0	4	1	2	2	2	2				2		2			
13	21UC1103	Design Thinking and Innovation-1	BS	0	0	4	0	2	2													

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									1	2	3	4	5	6	7	8	9	10	11	12	1	2	
15	21PH1010	Science Elective - 1 (Mechanics)	BS	3	1	0	0	4	1	1	3				2	1			1				
16	21CY1001	Science Elective-2(Chemistry)	BS	3	0	2	0	4	1			1											
17	21UC3105	Problem Solving Skills-I	BS	0	0	2	2	1.5						1	1								
18	21UC3206	Problem Solving Skills-II	BS	0	0	2	2	1.5	2	2													
19	21SC1101	Computational Thinking for Design	ES	3	0	2	6	5.5			2		2										
20	20ME1103	Design Tools Workshop – I	ES	0	0	4	0	2	2		2												
21	21SC1209	Design Tools Workshop – II	ES	0	0	4	0	2	2	2													
22	21SC1202	Design of Data Structures	ES	3	0	2	4	5			1	2											
23	21ME1002	Engineering Graphics & 2D Modelling	ES	1	0	4	0	3	2				2									2	
24	21ME2104	3D Modeling and Physical Prototyping (Workshop & 3D Modelling S/W)	ES	0	0	4	0	2	2		2												
25	21EE2205	Circuits and Electronics	ES	3	0	2	0	4	2														
26	21ME2105	Thermodynamics	PC	3	0	0	0	4	2	2													
27	21ME2106	Fluid Mechanics & Hydraulic Machines	PC	2	1	2	0	4		2		2											

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									1	2	3	4	5	6	7	8	9	10	11	12	1	2		
28	21ME2210	Analysis of Thermal Systems (with CFD & (Linked to Project))	PC	2	0	0	4	3	2				2											
29	21ME3115	Heat Transfer	PC	3	0	2	0	4	2															2
30	21ME3119	Heat Power Engineering	PC	2	0	0	0	2	2															2
31	21ME2101	Mechanics of Solids	PC	3	0	2	0	4		2				2										
32	21ME2208	Mechanical Engineering Design & Innovation (Analysis S/W)	PC	2	0	0	4	3	2	3														3
33	21ME2211	Kinematics of Machines (with Adams s/w)	PC	2	0	2	0	3		2			2											
34	21ME3118	Dynamics of Machines	PC	2	0	0	0	2																
35	21ME3113	Machine Design (Linked to Project)	PC	3	1	0	4	5																
36	21PH2007	Materials Technology	PC	2	0	0	0	2																
37	21ME2107	Manufacturing Processes	PC	2	0	2	0	3																
38	21ME2212	Manufacturing Technology (Linked to Project)	PC	2	0	2	0	3																
39	21ME3217	Production Technology	PC	3	0	0	0	3																
40	21ME3116	Optimization Techniques	PC	2	0	0	0	2																

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									1	2	3	4	5	6	7	8	9	10	11	12	1	2		
41	21ME4120	Instrumentation & Control	PC	2	0	0	4	3																
42	21ME3114	Industry 4.0 & Design of Cyber Physical Systems	PC	2	0	0	0	2																
43	20ME4051	THEORY OF ELASTICITY AND PLASTICITY	Engi neer ing desi gn	3	0	0	0	3																
44	20ME4052	FINITE ELEMENT METHOD		2	0	2	0	3																
45	20ME4053	MODELING ANALYSIS & DESIGN OF ROBOTIC SYSTEMS		2	0	2	0	3																
46	20ME4054	CREEP, FATIGUE AND FRACTURE MECHANICS		3	0	0	0	3																
47	20ME4055	ADVANCED STRENGTH OF MATERIALS		2	0	2	0	3																
48	20ME4056	MECHANICS OF COMPOSITE MATERIALS		2	0	2	0	3																
49	20ME4057	SUSTAINABLE DESIGN & SOCIAL INNOVATION IN ENGINEERING DESIGN		1	0	4	0	3																
50	20ME4061	MODERN MANUFACTURING PROCESSES	Sma rt man ufac turing	2	0	2	0	3																
51	20ME4062	ADDITIVE MANUFACTURING		2	0	2	0	3																
52	20ME4063	ADVANCED MATERIALS		3	0	0	0	3																
53	20ME4064	FLEXIBLE MANUFACTURING SYSTEMS		2	0	2	0	3																
55	20ME4065	ROBOTICS & INDUSTRIAL AUTOMATION		2	0	2	0	3																

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									1	2	3	4	5	6	7	8	9	10	11	12	1	2		
56	20ME4066	REVERSE ENGINEERING		3	0	0	0	3	1															
57	20ME4067	SUSTAINABLE DESIGN & SOCIAL INNOVATION IN SMART MANUFACTURING		2	0	2	0	3	2															
58	20ME4071	AUTOMOBILE ENGINEERING	Aut o m o b i l e E n g i n e e r i n g	2	0	2	0	3			2													
59	20ME4072	HYBRID & ELECTRIC VEHICLE DESIGN		2	0	2	0	3	1			2												
60	20ME4073	AUTOTRONICS & SAFETY		2	0	2	0	3	1	1														
61	20ME4074	ROBOTICS & INDUSTRIAL AUTOMATION		2	0	2	0	3			1													
62	20ME4075	AUTOMOTIVE ELECTRICAL AND ELECTRONICS SYSTEM		2	0	2	0	3	1	1														
63	20ME4076	AUTOMOBILE ENGINE SYSTEM AND PERFORMANCE		2	0	2	0	3	2	2														
64	20ME4077	SUSTAINABLE DESIGN & SOCIAL INNOVATION IN AUTOMOBILE ENGINEERING		1	0	4	0	3	2			3											3	
65	20ME4081	Autotronics		Aut o t r o n i c s	2	0	2	0	3	2	2													
66	20ME4082	Automotive Sensor and Applications	2		0	2	0	3			2	2												
67	20ME4083	Electronic Engine Management System	2		0	2	0	3			2	2												
68	20ME4084	Instrumentation in Automotive Industries	2		0	2	0	3			2	2												

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									1	2	3	4	5	6	7	8	9	10	11	12	1	2		
69	20ME4085	Autotronics and Vehicle Intelligence		2	0	2	0	3	1	1														
70	20ME4086	Autonomous Vehicle Design		2	0	2	0	3	1	1														
71	20ME4087	Sustainable Design & Social Innovation in Autotronics		1	0	4	0	3	2	2														3
72	20ME4091	Design for Quality and Reliability	Product Design	3	0	0	0	3	1		1													
73	20ME4092	Design of Agricultural Products & Machinery		3	0	0	0	3			2			2										
74	20ME4093	Designing Intelligence Systems		3	0	0	0	3	1		1													
75	20ME4094	Sustainable Design		3	0	0	0	3	1		1													
76	20ME4095	Systems Thinking for Design		3	0	0	0	3	1		1													
77	20ME4096	Design with Advanced Engineering Materials		3	0	0	0	3	1		1													
78	20ME4097	Sustainable Design & Social Innovation in Product Design		1	0	4	0	3	2	3														3
79	20ME40B4	Robotics	OE	3	0	0	0	3	3															
80	20ME40B5	Mechatronics	OE	3	0	0	0	3	3															
81	20ME40B6	Operations Research	OE	3	0	0	0	3	3															
82	20ME40B7	Hybrid Electric vehicles	OE	3	0	0	0	3	3															

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									1	2	3	4	5	6	7	8	9	10	11	12	1	2		
83	20ME40B8	Industry 4.0	OE	3	0	0	0	3	3															
84	20ME40B9	Industrial Automation	OE	3	0	0	0	3	3															
85	20ME40C1	Logistics & Supply chain management	OE	3	0	0	0	3	3															
86	20ME40C2	Total Quality Management	OE	3	0	0	0	3	3															
87	20ME40C3	Smart Mobility	OE	3	0	0	0	3	3															
88	20ME40C4	Managerial Economics for Engineers	OE	3	0	0	0	3	3															
89	21IE2040	Social Internship	PR	0	0	0	4	1		2			2				2					2	2	
90	21IE3041	Technical Internship	PR	0	0	0	4	1		2			2				2					2	2	
91	21IE4042	Industry Internship	PR	0	0	0	4	0																
92	21IE2046	Project Based Learning -1	PR	0	0	0	6	1.5		3		3										2	2	
93	21IE2047	Project based learning -2	PR	0	0	0	6	1.5		3			3				3					2	2	
94	21IE3043	Term paper	PR	0	0	0	4	1		3			3				3					2	2	
95	21IE3044	Mid Grad Capstone Project – I	PR	0	0	0	8	2		3			3				3					2	2	
96	21IE3045	Mid Grad Capstone Project – II	PR	0	0	0	8	2		3			3				3					2	2	

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									1	2	3	4	5	6	7	8	9	10	11	12	1	2		
97	21IE4048/21IE4051/21IE4050	Project / Internship - 1/Practice School	PR	0	0	0	16	4		3			3				3						2	2
98	21IE4049/21IE4052/21IE4050	Project / Internship 2/Practice School	PR	0	0	0	16	4									2		2					