

**DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code: **34** M. Tech. (CAD, CAM and Robotics)
 Department: **ME** Mechanical and Industrial Engineering
 Year: **I**

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Semester- I (Autumn)														
1.	MIN-511B	Modeling and Simulation	PCC	4	3	1	2/2	3	--	20	20	20	40	--
2.	MIN-559	Computer Aided Design	PCC	4	3	1	2/2	3	--	20	20	20	40	--
3.	MIN-502	Robotics and Control	PCC	4	3	1	2/2	3	--	20	20	20	40	--
4.	MIN-554	Computer Aided Mechanism Design	PCC	4	3	1	2/2	3	--	20	20	20	40	--
5.		Program Elective – I	PEC	4	-	-	-	-	-	-	-	-	-	-
		Total		20	12	4	4							
Semester-II (Spring)														
1.	MIN-501	Computer Aided Manufacturing	PCC	4	3	1	0	3	--	25	--	25	50	--
2.	MIN-700	Seminar		2	-	-	-	-	-	-	-	100	-	-
3.		Program Elective – II	PEC	4	-	-	-	-	-	-	-	-	-	-
4.		Program Elective – III	PEC	4	-	-	-	-	-	-	-	-	-	-
5.		Program Elective – IV	PEC	4	-	-	-	-	-	-	-	-	-	-
		Total		18	3	1	0							

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Program Code: **34** M. Tech. (CAD, CAM and Robotics)
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 Year: **II**

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Semester- I (Autumn)														
1.	MIN-701A	Dissertation Stage-I (to be continued next semester)	DIS	12	-	-	-	-	-	-	-	-	100	-
		Total		12										
Note: Students can take 1 or 2 audit courses as advised by the supervisor, if required.														
Semester-II (Spring)														
1.	MIN-701B	Dissertation Stage-II (contd. From III semester)	DIS	18	-	-	-	-	-	-	-	-	100	-
		Total		18										

Summary				
Semester	1	2	3	4
Semester-wise Total Credits	20	18	12	18
Total Credits	68			

Program Elective Courses (CAD, CAM and Robotics)

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1.	MIN-500	Instrumentation and Experimental Methods	PEC	4	3	1	2/2	3	--	20	20	20	40	--
2.	MIN-508	Advanced Automatic Control	PEC	4	3	1	0	3	--	25	--	25	50	--
3.	MIN-509	Extended Finite Element Methods	PEC	4	3	1	0	3	--	25	--	25	50	--
4.	MIN-515	Manufacturing System Analysis	PEC	4	3	1	0	3	--	25	--	25	50	--
5.	MIN-516	Artificial Intelligence	PEC	4	3	1	0	3	--	25	--	25	50	--
6.	MIN-517	Automated Materials Handling Systems	PEC	4	3	1	0	3	--	25	--	25	50	--
7.	MIN-527	Computational Fluid Dynamics & Heat Transfer	PEC	4	3	1	0	3	--	25	--	25	50	--
8.	MIN-550	Advanced Machine Design	PEC	4	3	1	0	3	--	25	--	25	50	--
9.	MIN-551	Dynamics of Mechanical Systems	PEC	4	3	1	0	3	--	25	--	25	50	--
10.	MIN-552	Advanced Mechanics of Solids	PEC	4	3	1	0	3	--	25	--	25	50	--
11.	MIN-557	Finite Element Methods	PEC	4	3	1	0	3	--	25	--	25	50	--
12.	MIN-558	Fracture Mechanics	PEC	4	3	1	0	3	--	25	--	25	50	--
13.	MIN-560	Mechanics of Composite Materials	PEC	4	3	1	0	3	--	25	--	25	50	--
14.	MIN-561	Advanced Mechanical Vibrations	PEC	4	3	1	2/2	3	--	20	20	20	40	--
15.	MIN-563	Mechatronics	PEC	4	3	1	2/2	3	--	20	20	20	40	--
16.	MIN-565	Smart Materials, Structures, and Devices	PEC	4	3	1	0	3	--	25	--	25	50	--
17.	MIN-566	Computer Aided Analysis of Mechanical Systems	PEC	4	3	1	0	3	--	25	--	25	50	--
18.	MIN-567	Computer Graphics	PEC	4	3	1	2/2	3	--	20	20	20	40	--
19.	MIN-568	Advanced Robotics	PEC	4	3	1	2/2	3	--	20	20	20	40	--

20.	MIN-569	Expert System Design	PEC	4	3	1	0	3	--	25	--	25	50	--
21.	MIN-575	Product Design and Development	PEC	4	3	1	0	3	--	25	--	25	50	--
22.	MIN-576	Machine Tool Design and Numerical Control	PEC	4	3	1	0	3	--	25	--	25	50	--
23.	MIN-577	Industrial Automation	PEC	4	3	1	0	3	--	25	--	25	50	--
24.	MIN-578	Computer Aided Process Planning	PEC	4	3	1	0	3	--	25	--	25	50	--
25.	MIN-579	Information Systems and Data Management	PEC	4	3	1	0	3	--	25	--	25	50	--
26.	MIN-582	Flexible Manufacturing Systems	PEC	4	3	1	0	3	--	25	--	25	50	--
27.	MIN-584	Operations Research	PEC	4	3	1	0	3	--	25	--	25	50	--
28.	MIN-602	Bond Graph Modelling of Engineering Systems	PEC	4	3	1	2/2	3	--	20	20	20	40	--
29.	MIN-608	Product and Process Optimization	PEC	4	3	1	0	3	--	25	--	25	50	--