DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code : **XXX M.Tech. (Materials Engineering)**
Department : **Department of Metallurgical and Materials Engineering**
Year : **I**
Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	MTC-503	Structure of Material	PCC	4	3	1	0	3	0
2.	MTC-513	Characterization of Materials	PCC	3	0	0	6	0	0
3.	MTC-521	Mechanical Behavior of Material	PCC	4	3	1	0	3	0
4.	MTC-523	Advanced Thermodynamics	PCC	4	3	1	0	3	0
5.		Social Science Course	SSC	2	-	-	-	-	-
		Total		**17**					
Semester-II (Spring)									
1.		Program Elective-I	PEC	4	-	-	-	-	-
2.		Program Elective-II	PEC	4	-	-	-	-	-
3.		Program Elective-III	PEC	4	-	-	-	-	-
4.		Program Elective-IV	PEC	4	-	-	-	-	-
5.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
6.	MTC-700	Seminar	SEM	2	-	-	-	-	-
		Total		**21**					

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Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	MTC-691	Internship Social Activity	ISA	3	-	-	-	-	-
2.	MTC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		Total		**13**					
Semester-II (Spring)									
1.	MTC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		Total		**14**					

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	17	21	13	14
Total Credits	**65**			

M.Tech. (Materials Engineering)

Program Elective Courses

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
1.	MTL-512	Engineering Ceramics	PEC	4	3	1	0	3	0
2.	MTL-515	Composite Materials	PEC	4	3	1	0	3	0
3.	MTL-536	Thin Film Technology	PEC	4	3	1	0	3	0
4.	MTL-537	Electronic Materials	PEC	4	3	1	0	3	0
5.	MTL-514	High Temperature Materials	PEC	4	3	1	0	3	0
6.	MTL-525	Biomaterials	PEC	4	3	1	0	3	0
7.	MTL-513	Principles of Materials Selection	PEC	4	3	1	0	3	0
8.	MTL-538	Nanomaterials and Applications	PEC	4	3	1	0	3	0
9.	MTL-528	Tribology of Engineering Materials	PEC	4	3	1	0	3	0
10.	MTL-526	Energy Storage Materials	PEC	4	3	1	0	3	0
11.	MTL-501	Crystal Plasticity Modeling	PEC	4	3	1	0	3	0
12.	MTL-502	Additive Manufacturing: Modeling and Simulation	PEC	4	3	1	0	3	0
13.	MTL-503	Materials Informatics	PEC	4	3	1	0	3	0
14.	MTL-504	Modeling and Simulations of Diffusion-based Processes in Metallurgy	PEC	4	3	1	0	3	0

M.Tech. (Materials Engineering)

Science, Technology, and Advanced Research-tools Basket

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	MTT-501	Materials for Sustainability	STAR	3	2	1	0	3	0