

DEPARTMENT OF METALLURGICAL ENGINEERING AND MATERIALS SCIENCE

Credit Structure and semester-wise scheduling of courses for M.Tech. Programme

Specialisation: **Steel Technology**

	CREDITS				
Course Work	Sem I	Sem II	Sem III	Sem IV	Total Credits
Core Courses	21	18	-	-	39
Electives **	6	12	-	-	18
Ins. Elective	-	6	-	-	6
Lab. Course	4	-	-	-	4
Seminar	4	-	-	-	4
R&D Project	-	-	-	-	-
Communication skills	+6	-	-	-	+6
Training	-	-	-	-	
Course Total	35+6	36	-	-	71+6
Project			50*	40	90
Total credits	35+6	36	50	40	161+6

*Registration in II Semester (January)

**Refers to department elective. Two electives must be from the Restricted elective list and one from Open Electives.

First Semester					
Course No.	Course Name	L	T	P	C
MM 6102	Computational Thermodynamics	2	1	0	6
MM 621	Advanced Physical and Mechanical Metallurgy	3	0	0	6
MM 732	Structural Characterisation of Materials (first half of the semester)	3	0	0	3
MM 659	Transport Phenomena	3	0	0	6
	Restricted Elective I	3	0	0	6
MM 611	Processing and Characterisation of Steel (Lab)	0	0.5	3	4
MM 694	Seminar	0	0	0	4
MM 899	Communication and Presentation Skills	1	2	0	6#
	Total credits				35+6

PP/NP Course, L – Lecture, T – Tutorial, P – Practical, C – Credit

Second Semester					
MM 770	Principles of Sustainable Ironmaking	3	0	0	6
MM 771	Principles of Steelmaking, Refining & Casting	3	0	0	6
MM 626[†]	Thermomechanical Processing and Forming of Steel [Soft Core- Out of 3 soft core courses, 2 are to be selected. Third one can be taken as a Restricted Elective]	3	0	0	6
MM 6104	Computational tools for analysing steel production	2	0	2	6
	Restricted Elective II	3	0	0	6
	Department Open Elective	3	0	0	6
	Institute Elective	3	0	0	6
	Total Credits				36

Note: Soft Core- Out of 3 soft core courses, 2 are to be selected. Third one can be taken as a Restricted Elective.

Third Semester		
MM 797	Project Stage-I	50

Fourth Semester		
MM 798	Project Stage-II	40

List of Restricted Electives (total -2)	
Course No.	Course Name
MM 650	Protective Coatings
MM 677	Diffusion and Kinetics
MM 730	Topics in Mechanical Behaviour of Materials
MM 641	Numerical methods in materials processing
MM 617	Topics in Phase Transformations
MM 642	Modelling of Metallurgical Processes
MM 668	Computational methods for metal forming analysis
MM 755	Kinetics of High Temperature Processes
MM 749	Statistics and probability for material engineers
MM 6004	Machine Learning for Materials Engineering
MM 445	Continuum Plasticity of Metals
MM 756	Physical Metallurgy and Mechanical Properties of Steels