

**13.COURSES OF STUDY AND SCHEME OF ASSESSMENT
ME - INDUSTRIAL METALLURGY**

**2021 REGULATIONS
(Minimum No. of credits to be earned: 71*)**

Course Code	Course Title	Hours / Week			Credits	Maximum Marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
I SEMESTER									
21YN01	Statistical Quality Control and Design of Experiments	3	1	0	4	50	50	100	PC
21YN02	Phase Transformations	3	1	0	4	50	50	100	PC
21YN03	Deformation and Strengthening Mechanisms	3	1	0	4	50	50	100	PC
21YN04	Metallurgy of Casting	3	0	0	3	50	50	100	PC
21YN05	Metallurgy of Forming	3	0	0	3	50	50	100	PC
21YN06	Research Methodology and IPR	2	0	0	2	50	50	100	RMC
21YN72	Audit Course – I	2	0	0	Grade	100	0	100	MC
21YN51	Microstructural Analysis Laboratory	0	0	4	2	50	50	100	PC
21YN52	Modeling and Simulation Laboratory	0	0	4	2	50	50	100	PC
Total 30 hrs		19	3	8	24	400	400	800	
II SEMESTER									
21YN07	Metallurgy of Welding	3	1	0	4	50	50	100	PC
21YN08	Failure Mechanisms and Analysis	3	1	0	4	50	50	100	PC
21YN_	Professional Elective – I	3	0	0	3	50	50	100	PE
21YN_	Professional Elective – II	3	0	0	3	50	50	100	PE
21YN_	Professional Elective – III	3	0	0	3	50	50	100	PE
21YN82	Audit Course – II	2	0	0	Grade	100	0	100	MC
21YN53	Material Processing Laboratory	0	0	4	2	50	50	100	PC
21YN54	Quality Inspection Laboratory	0	0	4	2	50	50	100	PC
21YN61	Industrial visit and Technical Seminar	0	0	4	2	50	50	100	EEC
Total 31 hrs		17	2	12	23	400	400	800	
III SEMESTER									
21YN_	Professional Elective – IV	3	0	0	3	50	50	100	PE
21YN--	Open Elective	3	0	0	3	50	50	100	OE
21YN71	Project Work I	0	0	12	6	50	50	100	EEC
Total 18 hrs		6	0	12	12	150	150	300	

IV SEMESTER									
21YN81	Project Work II	0	0	24	12	50	50	100	EEC
Total 24 hrs		0	0	24	12	50	50	100	
PROFESSIONAL ELECTIVE THEORY COURSES (Four to be opted)									
21YN09	Thermodynamics of Materials	3	0	0	3	50	50	100	PE
21YN10	Characterization Techniques	3	0	0	3	50	50	100	PE
21YN11	Iron and Steel Making	3	0	0	3	50	50	100	PE
21YN12	Surface Degradation of Materials	3	0	0	3	50	50	100	PE
21YN13	Particulate Technology	3	0	0	3	50	50	100	PE
21YN14	Metallurgy of Steels	3	0	0	3	50	50	100	PE
21YN15	Metallurgy of NonFerrous alloys	3	0	0	3	50	50	100	PE
21YN16	Polymers and Ceramics	3	0	0	3	50	50	100	PE
21YN17	Composite Materials	3	0	0	3	50	50	100	PE
21YN18	BioMaterials	3	0	0	3	50	50	100	PE
21YN19	Emerging Materials	3	0	0	3	50	50	100	PE
21YN20	Heat Treatment of Alloys	3	0	0	3	50	50	100	PE
21YN21	Surface Modification Technology	3	0	0	3	50	50	100	PE
21YN22	Casting Simulation and Design	3	0	0	3	50	50	100	PE
21YN23	Quality Control in Foundries	3	0	0	3	50	50	100	PE
21YN24	Fundamentals of Solidification	3	0	0	3	50	50	100	PE
21YN25	Welding Procedures and Qualifications	3	0	0	3	50	50	100	PE
21YN26	Welding Application Technology	3	0	0	3	50	50	100	PE
21YN27	Nondestructive Testing	3	0	0	3	50	50	100	PE
21YN28	Advanced NDT Techniques	3	0	0	3	50	50	100	PE
21YN29	Additive Manufacturing	3	0	0	3	50	50	100	PE
21YN30	Material and Process Modeling	3	0	0	3	50	50	100	PE
21YN31	Materials Selection	3	0	0	3	50	50	100	PE
OPEN ELECTIVE THEORY COURSES (One to be opted)									
21YN91	Data Analytics	3	0	0	3	50	50	100	OE
21YN92	Optimization Techniques	3	0	0	3	50	50	100	OE

* Indicated is the minimum number of credits to be earned by a student

CAT – Category; PC – Professional Core; PE - Professional Elective; RMC- Research Methodology and IPR; EEC – Employability Enhancement Course; AC- Audit Course; OE – Open Elective; Grade – Completed / Not Completed