

**13. Courses of Study and Scheme of Assessment
ME INDUSTRIAL METALLURGY (FULL TIME)**

**(2015 REGULATIONS)
(Minimum credits to be earned: 73*)**

Course Code	Course Title	Hours/Week			Credits	Maximum Marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
I SEMESTER									
15YN01	Statistics, Quality Control and Reliability Engineering	2	2	0	3	50	50	100	FC
15YN02	Engineering Physical Metallurgy	2	2	0	3	50	50	100	FC
15YN03	Foundry Technology	3	0	0	3	50	50	100	PC
15YN04	Welding Technology	3	0	0	3	50	50	100	PC
15YN05	Mechanical Metallurgy	2	2	0	3	50	50	100	PC
15YN51	Optical Metallography Laboratory	0	0	4	2	100	-	100	FC
15YN61	Industry Visit and Technical Seminar	0	0	4	2	100	-	100	EEC
Total 26 Hrs		12	6	8	19	450	250	700	
II SEMESTER									
15YN06	Experimental Techniques in Metallurgy	2	2	0	3	50	50	100	PC
15YN07	Forming Processes	2	2	0	3	50	50	100	PC
15YN08	Heat Treatment and Surface Modification	3	0	0	3	50	50	100	PC
15YN09	Iron and Steel Making	3	0	0	3	50	50	100	PC
15YN10	Environmental Degradation of Metals	3	0	0	3	50	50	100	PC
15YN__	Elective - 1	3	0	0	3	50	50	100	PE
15YN52	Casting, Joining and Forming laboratory	0	0	4	2	100	-	100	PE
Total 24 Hrs		16	4	4	20	400	300	700	
III SEMESTER									
15YN__	Elective - 2	3	0	0	3	50	50	100	PE
15YN__	Elective - 3	3	0	0	3	50	50	100	PE
15YN__	Elective - 4	3	0	0	3	50	50	100	PE
15YN__	Elective - 5	3	0	0	3	50	50	100	PE
15YN__	Elective - 6	3	0	0	3	50	50	100	PE
15YN53	Testing and Characterization Laboratory	0	0	4	2	100	-	100	PE
15YN71	Project Work I	0	0	6	3	100	-	100	EEC
Total 25 Hrs		15	0	10	20	450	250	700	
IV SEMESTER									
15YN72	Project Work II	0	0	28	14	50	50	100	EEC
Total 28 Hrs		0	0	28	14	50	50	100	
ELECTIVE THEORY COURSES (Six to be opted - out of which two may be electives from other ME / MTech programmes)									
15YN21	Non-Destructive Evaluation	3	0	0	3	50	50	100	PE
15YN22	Thermodynamics of Materials	3	0	0	3	50	50	100	PE
15YN23	Ferrous and Non-Ferrous Alloys	3	0	0	3	50	50	100	PE
15YN24	Powder Metallurgy	3	0	0	3	50	50	100	PE
15YN25	Foundry Metallurgy	3	0	0	3	50	50	100	PE
15YN26	Welding Metallurgy	3	0	0	3	50	50	100	PE
15YN27	Selection of Materials for Mechanical Design	3	0	0	3	50	50	100	PE
15YN28	Ceramics and Polymers	3	0	0	3	50	50	100	PE
15YN29	Composites	3	0	0	3	50	50	100	PE

15YN30	Metallurgical Failure Analysis	3	0	0	3	50	50	100	PE
15YN31	Advanced Materials	3	0	0	3	50	50	100	PE
15YN32	Materials Modeling	3	0	0	3	50	50	100	PE
15YN33	Creep Fatigue and Fracture	3	0	0	3	50	50	100	PE

15YN34	Welding Procedures and Qualifications	3	0	0	3	50	50	100	PE
15YN35	Research Methodology	3	0	0	3	50	50	100	PE
15YN36	Quality System Management	3	0	0	3	50	50	100	PE
15YN37	Ceramics Processing Technology	3	0	0	3	50	50	100	PE
15YN38	Advanced Coating Technologies	3	0	0	3	50	50	100	PE
15YN39	High Performance Ceramics	3	0	0	3	50	50	100	PE
15YN40	High Temperature Behavior of Alloys and Ceramics	3	0	0	3	50	50	100	PE
15YN41	Alloy Design	3	0	0	3	50	50	100	PE
15YN42	Semi Solid Metal Processing	3	0	0	3	50	50	100	PE
15YN43	Processing of Light Metal Alloys	3	0	0	3	50	50	100	PE
15YN44	Welding Codes and Standards	3	0	0	3	50	50	100	PE
15YN45	Welding Consumables	3	0	0	3	50	50	100	PE

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

CAT-Category;FC-Foundation Course;PC-Professional Core;PE-Professional Elective; EEC-Employability Enhancement Course.

SCIENCE ELECTIVES

15ID01	Micro Electro Mechanical Systems (MEMS)
15ID02	Sensors for Engineering Applications
15ID03	Laser Processing of Materials
15ID04	Plasma Technology
15ID05	Nanosensor and its Applications
15ID06	Nano Magnetism and Spintronics
15ID07	Corrosion Science and Engineering
15ID08	Instrumental Methods of Chemical Analysis
15ID09	Polymer Science and Technology
15ID10	Nanomaterials and Nanotechnology
15ID11	Thin Film Technology

HUMANITIES AND LANGUAGES ONE CREDIT COURSES

15OK01	Research Writing in Engineering Sciences
15OK02	Indian Ethos and Human Values
15OK03	Personality Development
15OK04	Financial Accounting and Cost Accounting