

**B. TECH. COURSE STRUCTURE OF METALLURGY & MATERIALS ENGINEERING
DEPARTMENT**

(Including all interdisciplinary loads & Course codes)

(Effective from 2015-16)

1ST YEAR

FIRST SEMESTER				SECOND SEMESTER			
Theory		Contact Hrs.	CR	Theory		Contact Hrs.	CR
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
	Elementary Mathematics for Engineers	3-1-0	4		Differential Equation	3-1-0	4
	Applied Physics/Chemistry	3-1-0	4		Chemistry/ Applied Physics	3-1-0	4
	Engineering Mechanics/Computer Programming	3-1-0	4		Computer Programming/Engineering Mechanics	3-1-0	4
	Basic Electrical Engineering/ Basic Electronics	3-1-0	4		Basic Electronics/Basic Electrical Engineering	3-1-0	4
	English/Environmental Studies	3-1-0	4		Environmental Studies/English	3-1-0	4
			20				20
Sessional				Sessional			
	Applied Physics Laboratory/Chemistry Lab	0-0-3	2		Chemistry Lab/Applied Physics Laboratory	0-0-3	2
	Workshop-I/Engineering Drawing	0-0-3	2		Engineering Drawing/Workshop-I	0-0-3	2
	Basic Electrical Engineering Lab/Basic Electronics Lab	0-0-3	2		Basic Electronics Lab/Basic Electrical Engineering Lab	0-0-3	2
	Business Communication and Presentation Skill/Programming Lab	0-0-3	2		Programming Lab/Business Communication and Presentation Skill	0-0-3	2
		15-5-12	28			15-5-12	28

2ND YEAR

THIRD SEMESTER				FOURTH SEMESTER			
Theory		Contact Hrs.	CR	Theory		Contact Hrs.	CR
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
	Multivariable Calculus and Special Functions	3-1-0	4		Probability, Statistics and Complex Analysis	3-1-0	4
	Engineering Economic & Costing	3-1-0	4	MM – 15 - 050	Transport Phenomena	3-1-0	4
MM – 15 - 019	Introduction to Physical Metallurgy	3-1-0	4	MM – 15 - 030	Mineral Processing	3-1-0	4
MM – 15 - 013	Fuels Furnace & Refractories	3-1-0	4	MM – 15 - 052	Unit Process of Extraction	3-1-0	4
MM – 15 - 029	Metallurgical Thermodynamics & Kinetics	3-1-0	4		Organizational Behaviour	3-1-0	4
			20				20
Sessional				Sessional			
MM – 15 - 027	Mechanics of Materials Lab.	0-0-3	2	MM – 15 - 031	Mineral Processing Lab.	0-0-3	2
MM – 15 - 047	Metallurgical Thermodynamics and Kinetics Lab.	0-0-3	2	MM – 15 - 051	Transport phenomena Lab.	0-0-3	2
MM – 15 - 038	Physical Metallurgy Lab.	0-0-3	2	MM – 15 - 014	Fuel Testing Lab.	0-0-3	2
	Workshop Practice – II	0-0-3	2	MM – 15 - 034	Non destructive Testing Lab.	0-0-3	2
		15-5-12	28			15-5-12	28

3RD YEAR

FIFTH SEMESTER				SIXTH SEMESTER			
Theory		Contact Hrs.	C R	Theory		Contact Hrs.	CR
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
MM – 15 - 020	Iron Making	3 -1 - 0	4	MM – 15 - 044	Steel Making	3 -1 - 0	4
MM – 15 - 036	Phase Transformations	3 -1 - 0	4	MM – 15 - 022	Materials Characterization	3 -1 - 0	4
MM – 15 - 008	Deformation Theory of Metals	3 -1 - 0	4	MM – 15 - 015	Heat Treatment	3 -1 - 0	4
MM – 15 - 025	Materials Testing	3 -1 - 0	4	MM – 15 - 035	Non Ferrous Extractive Metallurgy	3 -1 - 0	4
MM – 15 - 007	Corrosion and Degradation of Materials	3 -1 - 0	4		Core Elective I	3 -1 - 0	4
			20				20
	Sessional				Sessional		
MM – 15 - 009	Electro Metallurgy & Corrosion Lab.	0-0-3	2	MM – 15 - 016	Heat Treatment Lab.	0-0-3	2
MM – 15 - 039	Process Metallurgy Lab.	0-0-3	2	MM – 15 - 023	Materials Characterization Lab.	0-0-3	2
MM – 15 - 037	Phase Transformations Lab.	0-0-3	2	MM – 15 - 024	Materials Processing Lab.	0-0-3	2
MM – 15 - 026	Materials Testing Lab.	0-0-3	2	MM – 15 - 041	Powder Metallurgy Lab.	0-0-3	2
		15-5-12	28			15-5-12	28

4TH YEAR

SEVENTH SEMESTER				EIGHTH SEMESTER			
Theory		Contact Hrs.	CR	Theory		Contact Hrs.	CR
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
MM – 15 - 040	Powder Metallurgy & Composite Materials	3 - 1 - 0	4	MM – 15 - 010	Engineering Materials	3-1-0	4
MM – 15 - 028	Mechanical Working of Metallic Materials	3 - 1 - 0	4	MM – 15 - 046	Surface Engineering	3-1-0	4
MM – 15 - 004	Casting Processes & Solidification	3 - 1 - 0	4	Open Elective-II		3-1-0	4
	Core Elective II	3 - 1 - 0	4				
	Open Elective-I	3 - 1 - 0	4				
			20				12
Sessional				Sessional			
MM – 15 - 006	Computer Applications in Metallurgical Engg. Lab	0-0-3	2	MM – 15 - 021	Major Project	0-0-6	8
				MM – 15 - 042	Seminar	0-0-0	2
MM – 15 - 032	Minor Project	0-0-3	2	MM – 15 - 005	Comprehensive viva voce	0-0-0	2
		15-5-6	24			9-3-6	24
CORE ELECTIVE - I		Contact Hrs.	CR	OPEN ELECTIVE – I & II			CR
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
MM – 15 - 053	Welding Technology	3 - 1 - 0	4	MM – 15 - 001	Advanced Materials	3 - 1 - 0	4
MM – 15 - 002	Alternative routes of iron making	3 - 1 - 0	4	MM – 15 - 018	Introduction to Nano Science & Nano Technology	3 - 1 - 0	4
MM – 15 - 043	Sintering Theory and Practice	3 - 1 - 0	4	MM – 15 - 048	Thermo-mechanical processing of Materials	3 - 1 - 0	4
MM – 15 - 017	Hydro & Electro Metallurgy	3 - 1 - 0	4	MM – 15 - 054	X-ray diffraction	3 - 1 - 0	4
	CORE ELECTIVE - II			MM – 15 - 011	Fabrication of Materials	3 - 1 - 0	4
MM – 15 - 049	Theory of alloys	3 - 1 - 0	4	MM – 15 - 045	Steel Technology	3 - 1 - 0	4
MM – 15 - 033	Modeling of Materials Processes	3 - 1 - 0	4		Numerical Methods in Engineering	3 - 1 - 0	4
MM – 15 - 012	Failure analysis	3 - 1 - 0	4		Finite Element Method	3 - 1 - 0	4
MM – 15 - 003	Bio materials	3 - 1 - 0	4		Modeling & Simulation	3 - 1 - 0	4
					Manufacturing & Design of Composites	3 - 1 - 0	4