



Curriculum for B. Tech. (Metallurgical and Materials Engineering) 3rd Sem to 8th Sem

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Subject Name	Code	L-T-P	Credit	Contact Hour
SEMESTER - III				
Basic Electronics	EC2L005	3-1-0	4	4
Introduction to Materials Science and Engineering	ID2L001	2-0-0	2	2
Introduction to Bio Science and Technology	ID2L002	2-0-0	2	2
Numerical Methods	MA2L007	3-1-0	4	4
Breadth - I			3/4	3/4
Thermodynamics of Materials	ML2L002	3-0-0	3	3
Basic Electronics Laboratory	EC2P005	0-0-3	2	3
Introduction to Materials Laboratory	ML2P001	0-0-3	2	3
Seminar	ML2S001	0-0-0	2	0
		Total	24/25	24/25
SEMESTER - IV				
Breadth - II			3/4	3/4
Lateral 1			3/4	3/4
Environmental Science, Technology and Management	ID3L003	2-0-0	2	2
Materials Processing	ML2L003	3-0-0	3	3
Transport Phenomena and Kinetics of Metallurgical Processes	ML2L004	3-1-0	4	4
Physical Metallurgy	ML2L005	3-0-0	3	3
Materials Processing Laboratory	ML2P002	0-0-3	2	3
Physical Metallurgy Laboratory	ML2P003	0-0-3	2	3
Thermodynamics of Materials Laboratory	ML2P004	0-0-3	2	3
		Total	24/26	27/29
SEMESTER - V				
Breadth - III			3/4	3/4
Lateral - II			3/4	3/4
Mineral processing	ML3L001	3-0-0	3	3
Corrosion and surface engineering	ML3L002	3-0-0	3	3
Mechanical properties and testing of materials	ML3L003	3-0-0	3	3
Phase transformation of materials	ML3L004	3-0-0	3	3
Chemical metallurgy	ML3L005	3-0-0	3	3
Mechanical testing & working laboratory	ML3P001	0-0-3	2	3
		Total	23/25	24/26
SEMESTER - VI				
Breadth - IV			3/4	3/4
Lateral - III			3/4	3/4
Materials characterization	ML3L006	3-0-0	3	3
Iron and Steel making	ML3L007	3-0-0	3	3
Deformation and mechanical working of materials	ML3L008	3-0-0	3	3
Introduction to simulation and modeling in materials	ML3L009	3-0-0	3	3
Materials characterization laboratory - I	ML3P002	0-0-3	2	3
Simulation and modeling laboratory	ML3P003	0-0-3	2	3
		Total	22/24	24/26
SEMESTER - VII				
Light metals and alloys	ML4L001	3-0-0	3	3
Elements of electroceramics	ML4L002	3-0-0	3	3
Polymers and nanocomposites	ML4L003	3-0-0	3	3

Elective - I	ML4LXXX	3-0-0	3	3
Materials characterization laboratory - II	ML4P001	0-0-3	2	3
Process control and instrumentation laboratory	ML4P002	0-0-3	2	3
Industrial training defense	ML4T001	0-0-0	2	0
Project - I	ML4D001	0-0-6	4	0
		Total	22	18
SEMESTER - VIII				
Elective - II	ML4LXXX	3-0-0	3	3
Elective - III	ML4LXXX	3-0-0	3	3
Elective - IV	ML4LXXX	3-0-0	3	3
Elective - V	ML4LXXX	3-0-0	3	3
Project - II	ML4D002	0-0-9	6	0
		Total	18	12
List of Electives				
<i>Metallurgical Engineering based Electives</i>				
Joining of metals and alloys	ML4L001	3-0-0	3	3
Solidification of metals and alloys	ML4L002	3-0-0	3	3
Electrochemical methods in metallurgy	ML4L003	3-0-0	3	3
Powder metallurgy	ML4L004	3-0-0	3	3
<i>Material Engineering based Electives</i>				
Materials design and selection	ML4L005	3-0-0	3	3
Energy materials	ML4L006	3-0-0	3	3
Crystallography and x-ray diffraction	ML4L007	3-0-0	3	3
Micro Electro Mechanical Systems	ML4L008	3-0-0	3	3
Physics of materials	ML4L009	3-0-0	3	3
Science and technology of composite materials	ML4L010	3-0-0	3	3
Biomaterials	ML4L011	3-0-0	3	3
Materials in archaeology	ML4L012	3-0-0	3	3
<i>Minerals and resources based Electives</i>				
Mineral process plant design	ML4L013	3-0-0	3	3
Fuels, furnaces and refractories	ML4L014	3-0-0	3	3
Materials recycling and sustainability	ML4L015	3-0-0	3	3
List of Laterals				
Advances in nanoscience and nanotechnology	ML2L006	3-0-0	3	3
Recent advances in composite materials	ML3L011	3-0-0	3	3
Mineral processing plant design	ML3L012	3-0-0	3	3