

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

Subject Name	Code	L-T-P	Credit	Contact Hour
<b>SEMESTER - III</b>				
<a href="#">Basic Electronics</a>	EC2L005	3-1-0	4	4
<a href="#">Introduction to Materials Science and Engineering</a>	ID2L001	2-0-0	2	2
<a href="#">Introduction to Bio Science and Technology</a>	ID2L002	2-0-0	2	2
<a href="#">Numerical Methods</a>	MA2L007	3-1-0	4	4
Breadth - I			3/4	3/4
<a href="#">Thermodynamics of Materials</a>	ML2L002	3-0-0	3	3
<a href="#">Basic Electronics Laboratory</a>	EC2P005	0-0-3	2	3
<a href="#">Introduction to Materials Laboratory</a>	ML2P001	0-0-3	2	3
Seminar	ML2S001	0-0-0	2	0
		<b>Total</b>	<b>24/25</b>	<b>24/25</b>
<b>SEMESTER – IV</b>				
Breadth - II			3/4	3/4
Lateral 1			3/4	3/4
<a href="#">Environmental Science, Technology and Management</a>	ID2L003	2-0-0	2	2
<a href="#">Materials Processing</a>	ML2L003	3-0-0	3	3
<a href="#">Transport Phenomena and Kinetics of Metallurgical Processes</a>	ML2L004	3-1-0	4	4
<a href="#">Physical Metallurgy</a>	ML2L005	3-0-0	3	3
<a href="#">Materials Processing Laboratory</a>	ML2P002	0-0-3	2	3
<a href="#">Physical Metallurgy Laboratory</a>	ML2P003	0-0-3	2	3
<a href="#">Thermodynamics of Materials Laboratory</a>	ML2P004	0-0-3	2	3
		<b>Total</b>	<b>24/26</b>	<b>27/29</b>
<b>SEMESTER - V</b>				
Breadth - III			3/4	3/4
Lateral - II			3/4	3/4

<a href="#">Mineral processing</a>	<b>ML3L001</b>	3-0-0	3	3
<a href="#">Corrosion and surface engineering</a>	<b>ML3L002</b>	3-0-0	3	3
<a href="#">Mechanical properties and testing of materials</a>	<b>ML3L003</b>	3-0-0	3	3
<a href="#">Phase transformation of materials</a>	<b>ML3L004</b>	3-0-0	3	3
<a href="#">Chemical metallurgy</a>	<b>ML3L005</b>	3-0-0	3	3
<a href="#">Mechanical testing &amp; working laboratory</a>	<b>ML3P001</b>	0-0-3	2	3
		<b>Total</b>	<b>23/25</b>	<b>24/26</b>
<b>SEMESTER - VI</b>				
Breadth - IV			3/4	3/4
Lateral - III			3/4	3/4
<a href="#">Materials characterization</a>	<b>ML3L006</b>	3-0-0	3	3
<a href="#">Iron and Steel making</a>	<b>ML3L007</b>	3-0-0	3	3
<a href="#">Deformation and mechanical working of materials</a>	<b>ML3L008</b>	3-0-0	3	3
<a href="#">Introduction to simulation and modeling in materials</a>	<b>ML3L009</b>	3-0-0	3	3
<a href="#">Materials characterization laboratory - I</a>	<b>ML3P002</b>	0-0-3	2	3
<a href="#">Simulation and modeling laboratory</a>	<b>ML3P003</b>	0-0-3	2	3
		<b>Total</b>	<b>22/24</b>	<b>24/26</b>
<b>SEMESTER - VII</b>				
<a href="#">Light metals and alloys</a>	<b>ML4L001</b>	3-0-0	3	3
<a href="#">Elements of electroceramics</a>	<b>ML4L002</b>	3-0-0	3	3
<a href="#">Polymers and nanocomposites</a>	<b>ML4L003</b>	3-0-0	3	3
<a href="#">Elective - I</a>	<b>ML4LXXX</b>	3-0-0	3	3
<a href="#">Materials characterization laboratory - II</a>	<b>ML4P001</b>	0-0-3	2	3
<a href="#">Process control and instrumentation laboratory</a>	<b>ML4P002</b>	0-0-3	2	3
<a href="#">Industrial training defense</a>	<b>ML4T001</b>	0-0-0	2	0
<a href="#">Project - I</a>	<b>ML4D001</b>	0-0-6	4	0
		<b>Total</b>	<b>22</b>	<b>18</b>
<b>SEMESTER - VIII</b>				
Elective – II	<b>ML4LXXX</b>	3-0-0	3	3
Elective – III	<b>ML4LXXX</b>	3-0-0	3	3
Elective – IV	<b>ML4LXXX</b>	3-0-0	3	3
Elective – V	<b>ML4LXXX</b>	3-0-0	3	3
Project – II	<b>ML4D002</b>	0-0-9	6	0
		<b>Total</b>	<b>18</b>	<b>12</b>

<b>List of Electives</b>				
<i>Metallurgical Engineering based Electives</i>				
<a href="#">Joining of metals and alloys</a>	<b>ML4L001</b>	3-0-0	3	3
<a href="#">Solidification of metals and alloys</a>	<b>ML4L002</b>	3-0-0	3	3
<a href="#">Electrochemical methods in metallurgy</a>	<b>ML4L003</b>	3-0-0	3	3
<a href="#">Powder metallurgy</a>	<b>ML4L004</b>	3-0-0	3	3
<i>Material Engineering based Electives</i>				
<a href="#">Materials design and selection</a>	<b>ML4L005</b>	3-0-0	3	3
<a href="#">Energy materials</a>	<b>ML4L006</b>	3-0-0	3	3
<a href="#">Crystallography and x-ray diffraction</a>	<b>ML4L007</b>	3-0-0	3	3
Micro Electro Mechanical Systems	<b>ML4L008</b>	3-0-0	3	3
<a href="#">Physics of materials</a>	<b>ML4L009</b>	3-0-0	3	3
Science and technology of composite materials	<b>ML4L010</b>	3-0-0	3	3
<a href="#">Biomaterials</a>	<b>ML4L011</b>	3-0-0	3	3
<a href="#">Materials in archaeology</a>	<b>ML4L012</b>	3-0-0	3	3
<i>Minerals and resources based Electives</i>				
<a href="#">Mineral process plant design</a>	<b>ML4L013</b>	3-0-0	3	3
<a href="#">Fuels, furnaces and refractories</a>	<b>ML4L014</b>	3-0-0	3	3
<a href="#">Materials recycling and sustainability</a>	<b>ML4L015</b>	3-0-0	3	3
<b>List of Laterals</b>				
<a href="#">Advances in nanoscience and nanotechnology</a>	<b>ML2L006</b>	3-0-0	3	3
<a href="#">Recent advances in composite materials</a>	<b>ML3L011</b>	3-0-0	3	3
<a href="#">Mineral processing plant design</a>	<b>ML3L012</b>	3-0-0	3	3
<b>Subject Name</b>	<b>Code</b>	<b>L-T-P</b>	<b>Credit</b>	<b>Contact Hour</b>
<b>SEMESTER - III</b>				
<a href="#">Basic Electronics</a>	<b>EC2L005</b>	3-1-0	4	4
<a href="#">Introduction to Materials Science and Engineering</a>	<b>ID2L001</b>	2-0-0	2	2
<a href="#">Introduction to Bio Science and Technology</a>	<b>ID2L002</b>	2-0-0	2	2
<a href="#">Numerical Methods</a>	<b>MA2L007</b>	3-1-0	4	4
Breadth - I			3/4	3/4
<a href="#">Thermodynamics of Materials</a>	<b>ML2L002</b>	3-0-0	3	3
<a href="#">Basic Electronics Laboratory</a>	<b>EC2P005</b>	0-0-3	2	3

<a href="#">Introduction to Materials Laboratory</a>	<b>ML2P001</b>	0-0-3	2	3
Seminar	<b>ML2S001</b>	0-0-0	2	0
		<b>Total</b>	<b>24/25</b>	<b>24/25</b>
<b>SEMESTER – IV</b>				
Breadth - II			3/4	3/4
Lateral 1			3/4	3/4
<a href="#">Environmental Science, Technology and Management</a>	<b>ID3L003</b>	2-0-0	2	2
<a href="#">Materials Processing</a>	<b>ML2L003</b>	3-0-0	3	3
<a href="#">Transport Phenomena and Kinetics of Metallurgical Processes</a>	<b>ML2L004</b>	3-1-0	4	4
<a href="#">Physical Metallurgy</a>	<b>ML2L005</b>	3-0-0	3	3
<a href="#">Materials Processing Laboratory</a>	<b>ML2P002</b>	0-0-3	2	3
<a href="#">Physical Metallurgy Laboratory</a>	<b>ML2P003</b>	0-0-3	2	3
<a href="#">Thermodynamics of Materials Laboratory</a>	<b>ML2P004</b>	0-0-3	2	3
		<b>Total</b>	<b>24/26</b>	<b>27/29</b>
<b>SEMESTER - V</b>				
Breadth - III			3/4	3/4
Lateral - II			3/4	3/4
<a href="#">Mineral processing</a>	<b>ML3L001</b>	3-0-0	3	3
<a href="#">Corrosion and surface engineering</a>	<b>ML3L002</b>	3-0-0	3	3
<a href="#">Mechanical properties and testing of materials</a>	<b>ML3L003</b>	3-0-0	3	3
<a href="#">Phase transformation of materials</a>	<b>ML3L004</b>	3-0-0	3	3
<a href="#">Chemical metallurgy</a>	<b>ML3L005</b>	3-0-0	3	3
<a href="#">Mechanical testing &amp; working laboratory</a>	<b>ML3P001</b>	0-0-3	2	3
		<b>Total</b>	<b>23/25</b>	<b>24/26</b>
<b>SEMESTER - VI</b>				
Breadth - IV			3/4	3/4
Lateral - III			3/4	3/4
<a href="#">Materials characterization</a>	<b>ML3L006</b>	3-0-0	3	3
<a href="#">Iron and Steel making</a>	<b>ML3L007</b>	3-0-0	3	3
<a href="#">Deformation and mechanical working of materials</a>	<b>ML3L008</b>	3-0-0	3	3
<a href="#">Introduction to simulation and modeling in materials</a>	<b>ML3L009</b>	3-0-0	3	3
<a href="#">Materials characterization laboratory - I</a>	<b>ML3P002</b>	0-0-3	2	3
<a href="#">Simulation and modeling laboratory</a>	<b>ML3P003</b>	0-0-3	2	3

		Total	22/24	24/26
<b>SEMESTER - VII</b>				
<a href="#">Light metals and alloys</a>	<b>ML4L001</b>	3-0-0	3	3
<a href="#">Elements of electroceramics</a>	<b>ML4L002</b>	3-0-0	3	3
<a href="#">Polymers and nanocomposites</a>	<b>ML4L003</b>	3-0-0	3	3
<a href="#">Elective - I</a>	<b>ML4LXXX</b>	3-0-0	3	3
<a href="#">Materials characterization laboratory - II</a>	<b>ML4P001</b>	0-0-3	2	3
<a href="#">Process control and instrumentation laboratory</a>	<b>ML4P002</b>	0-0-3	2	3
<a href="#">Industrial training defense</a>	<b>ML4T001</b>	0-0-0	2	0
<a href="#">Project - I</a>	<b>ML4D001</b>	0-0-6	4	0
		<b>Total</b>	<b>22</b>	<b>18</b>
<b>SEMESTER - VIII</b>				
Elective – II	<b>ML4LXXX</b>	3-0-0	3	3
Elective – III	<b>ML4LXXX</b>	3-0-0	3	3
Elective – IV	<b>ML4LXXX</b>	3-0-0	3	3
Elective – V	<b>ML4LXXX</b>	3-0-0	3	3
Project – II	<b>ML4D002</b>	0-0-9	6	0
		<b>Total</b>	<b>18</b>	<b>12</b>
<b>List of Electives</b>				
<i>Metallurgical Engineering based Electives</i>				
<a href="#">Joining of metals and alloys</a>	<b>ML4L001</b>	3-0-0	3	3
<a href="#">Solidification of metals and alloys</a>	<b>ML4L002</b>	3-0-0	3	3
<a href="#">Electrochemical methods in metallurgy</a>	<b>ML4L003</b>	3-0-0	3	3
<a href="#">Powder metallurgy</a>	<b>ML4L004</b>	3-0-0	3	3
<i>Material Engineering based Electives</i>				
<a href="#">Materials design and selection</a>	<b>ML4L005</b>	3-0-0	3	3
<a href="#">Energy materials</a>	<b>ML4L006</b>	3-0-0	3	3
<a href="#">Crystallography and x-ray diffraction</a>	<b>ML4L007</b>	3-0-0	3	3
Micro Electro Mechanical Systems	<b>ML4L008</b>	3-0-0	3	3
<a href="#">Physics of materials</a>	<b>ML4L009</b>	3-0-0	3	3
Science and technology of composite materials	<b>ML4L010</b>	3-0-0	3	3
<a href="#">Biomaterials</a>	<b>ML4L011</b>	3-0-0	3	3
<a href="#">Materials in archaeology</a>	<b>ML4L012</b>	3-0-0	3	3
<i>Minerals and resources based Electives</i>				

<a href="#">Mineral process plant design</a>	<b>ML4L013</b>	3-0-0	3	3
<a href="#">Fuels, furnaces and refractories</a>	<b>ML4L014</b>	3-0-0	3	3
<a href="#">Materials recycling and sustainability</a>	<b>ML4L015</b>	3-0-0	3	3
<b>List of Laterals</b>				
<a href="#">Advances in nanoscience and nanotechnology</a>	<b>ML2L006</b>	3-0-0	3	3
<a href="#">Recent advances in composite materials</a>	<b>ML3L011</b>	3-0-0	3	3
<a href="#">Mineral processing plant design</a>	<b>ML3L012</b>	3-0-0	3	3