<table>
<tr><td colspan="8">Department of Metallurgical and Materials Engineering</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>MMS752</td><td>Materials Characterization Lab - II</td><td>PCR</td><td>0</td><td>0</td><td>3</td><td>3</td><td>1.5</td></tr>
<tr><td colspan="3">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="3">MMC-503: Fundamentals of Plastic Deformation and Strengthening of materials</td><td colspan="5">CT+EA</td></tr>
<tr><td colspan="3">Developer</td><td colspan="5">Dr B.K. Show & Dr M. Mallik</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">I. Learn fundamentals of tribological behavior of materials and NDT methods.
II. Identifying the mechanism of wear.
III. Learn the operational aspect wear machines and NDT instruments.
IV Ability to analyze the fracture/wear mode to meet contemporary need.
V. Determination strain hardening exponent from tensile test.
VI. Learn the effect of strain rate on tensile behavior of steels.
VII. Learn to calculate fracture toughness by indentation technique.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">List of Experiments:

1. Materials Characterization Using Non Destructive Testing (NDT) Methods:
(a) Magnetic particle testing
(b) Dye penetrant test.
(c) Ultrasonic technique
2. Tribological study and worn surface characterisation of different materials using:
(a) Pin-on-disk wear testing machine.
(b) High stress abrasive wear testing machine.
3. Effect of strain rate on tensile behaviour and fracture surface of different materials
4. Determination of fracture toughness by indentation technique</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:

1. Mechanical Metallurgy by George Dieter</td></tr>
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