



**Department of Metallurgy and Materials Engineering**  
**COEP Technological University Pune**

| <b>Summary of Equipments</b> |                                      |                   |                               |
|------------------------------|--------------------------------------|-------------------|-------------------------------|
| Sr. No.                      | Name of the Department               | Total No. of Labs | Equipment Cost (Rs. in Lakhs) |
| 1                            | Metallurgy and Materials Engineering | 18                | 840.11                        |


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| Material Testing Laboratory   | Cost (Rs in Lakhs)   |
|---|--|
| <div style="display: flex; align-items: flex-start;">  <div style="margin-left: 20px;"> <p style="font-weight: bold; font-size: 1.2em;">10 Ton UTM</p> <ul style="list-style-type: none"> <li>60 T UTM</li> <li>10 T UTM</li> <li>20T UTM</li> <li>Digital Charpy Impact Tester and Broaching Machine</li> <li>Brinell hardness tester (2 nos.)</li> <li>Rockwell hardness testers (2 nos.)</li> <li>Vickers Hardness (2 nos.) (Total 6 machines = 5.62 L)</li> </ul> </div> </div> | <p style="font-weight: bold; font-size: 1.2em;">10.12</p> <p style="font-weight: bold; font-size: 1.2em;">5.07</p> <p style="font-weight: bold; font-size: 1.2em;">10.50</p> <p style="font-weight: bold; font-size: 1.2em;">3.79</p> <p style="font-weight: bold; font-size: 1.2em;">5.62</p> |
| <b>Total</b>  | <b>35.10</b>   |

| Spectroscopy Laboratory   |                                | Cost<br>(Rs in Lakhs) |
|---|--------------------------------|-----------------------|
|  | Atomic Absorption Spectroscopy | 16.52                 |
| <b>Total</b>  |                                | <b>16.52</b>          |



| Ceramics Laboratory   |  | Cost<br>(Rs in Lakhs)  |
|---|--|--|
|     | <ul style="list-style-type: none"> <li>• Tubular Sintering Furnace(1400°C)</li> <li>• Planetary Ball Mill</li> <li>• DSC- STA</li> <li>• Dilatometer (Temp – 1000°C)</li> <li>• Chamber Type SiC Muffle Furnace</li> <li>• BET Surface area analyzer.</li> <li>• Laboratory Oven</li> <li>• Rotap Sieve shaker</li> <li>• Spray Dryer (Microcontroller Model SPD-M-111)</li> <li>• Control Atmosphere cum Vacuum Tube (Horizontal Tube) Si-C Furnace</li> <li>• Analytical weighing balance</li> </ul> | 2.37<br>13.00<br>17.83<br>24.00<br>1.33<br>5.8<br>0.90<br>1.06<br>1.33<br>4.80<br>2.75<br>0.81 |
| <b>Total</b>  |  | <b>75.98</b>   |


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| Heat treatment Laboratory  | Cost<br>(Rs in Lakhs)   |
|--|---|
|   |   |
| <ul style="list-style-type: none"> <li>• Muffle furnaces 600°C</li> <li>• Muffle furnaces 1200°C</li> <li>• Muffle furnaces 1400°C</li> <li>• Fluidized bed Furnace</li> <li>• Carburizing Furnace</li> <li>• Gas Nitriding Furnace</li> </ul> | <p>1.12</p> <p>1.19</p> <p>1.06</p> <p>2.16</p> <p>3.10</p> <p>1.08</p> |
| <b>Total</b>   | <b>9.71</b>   |


| Image Analysis Laboratory   | Cost<br>(Rs in Lakhs)                            |
|---|--|
|    |  |
| <ul style="list-style-type: none"> <li>• Stereo-Zoom Microscope Image analyzer</li> <li>• Image analyzer with microscope</li> <li>• Stereo-Zoom microscope</li> <li>• Microhardness Tester</li> <li>• Metallurgical Microscopes with Software and LCD Display Screen</li> </ul> | <p>11.18</p> <p>2.40</p> <p>4.16</p> <p>2.25</p> |
| <b>Total</b>  | <b>19.99</b>                                     |

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| Physical Metallurgy Laboratory   | Cost<br>(Rs in Lakhs)               |
|--|-------------------------------------|
| <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">Sterio Scope      Vickers Hardness Tester</p> <ul style="list-style-type: none"> <li>• Optical microscopes (10 Nos.)</li> <li>• Hot Mounting Press ( 2 nos)</li> <li>• Microscope -CCTV digital image</li> </ul> | <p>9.56</p> <p>1.75</p> <p>1.57</p> |
| <b>Total</b>   | <b>12.88</b>                        |

| Chemical Analysis Laboratory  | Cost<br>(Rs in Lakhs)               |
|---|-------------------------------------|
|  <ul style="list-style-type: none"> <li>• Analytical Balance</li> <li>• Strohleins Carbon Analyser</li> <li>• Electrogravimetric analyzer</li> </ul> | <p>0.72</p> <p>0.72</p> <p>0.90</p> |
| <b>Total</b>  | <b>2.34</b>                         |

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| Powder Metallurgy Laboratory   | Cost<br>(Rs in Lakhs)   |
|--|---|
|    |   |
| <ul style="list-style-type: none"> <li>• Cryogenic bath</li> <li>• Hot Press Sintering Machine</li> <li>• Pin on Disc Machine * 3</li> <li>• Fatigue Testing Machine</li> <li>• Rockwell Hardness Tester</li> <li>• Milling Machine</li> <li>• Cold Compaction Machine</li> <li>• Diamond Saw cutting machine</li> <li>• Densitometer</li> <li>• Vacuum Sintering Furnace (1100°C)</li> <li>• Tubular Sintering Furnace (1100°C)</li> <li>• MoSi<sub>2</sub> Tubular Furnace (1600°C)</li> <li>• Muffle Furnace (600°C)</li> <li>• Muffle Furnace (1200°C)</li> <li>• Oven</li> <li>• Vacuum System</li> <li>• Weighing Balance</li> <li>• Weighing Balance(old)</li> <li>• Optical Image Analyser</li> <li>• High Temperature wear machine</li> <li>• Atomizer</li> </ul> | <p>10</p> <p>13.5</p> <p>3.5</p> <p>3.5</p> <p>0.5</p> <p>2.0</p> <p>5.5</p> <p>1.75</p> <p>0.5</p> <p>1.5</p> <p>1.5</p> <p>5.0</p> <p>0.45</p> <p>1.8</p> <p>1.75</p> <p>1.75</p> <p>2</p> <p>1.94</p> <p>2.25</p> <p>6.5</p> <p>9.14</p> <p>4.41</p> |
| <b>Total (Rs.)</b>   | <b>80.74</b>  |

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| <b>Corrosion Laboratory</b>   | <b>Cost<br/>(Rs in Lakhs)</b> |
|---|-------------------------------|
|  <p style="text-align: center;"><b>Impedance analyzer</b></p> <ul style="list-style-type: none"> <li>• Potentiostat (Impedance analyzer) <span style="float: right;">7.50</span></li> <li>• Electrochemical quartz crystal micro balance (ECMB) <span style="float: right;">8.0</span></li> <li>• Salt Spray chamber <span style="float: right;">2.93</span></li> <li>• Ultrasonic stirrer and cleaner <span style="float: right;">2.36</span></li> <li>• Weatherometer <span style="float: right;">6.3</span></li> <li>• Pull Off Adhesion Tester <span style="float: right;">0.83</span></li> <li>• High Temperature Furnace <span style="float: right;">6.10</span></li> <li>• Glossmeter <span style="float: right;">0.99</span></li> <li>• Cyclic corrosion chamber m/c <span style="float: right;">14.43</span></li> <li>• Pin on Disc machine <span style="float: right;">10</span></li> <li>• Slow Strain rate tensile machine <span style="float: right;">13.50</span></li> </ul> |                               |
| <b>Total</b>  | <b>72.94</b>                  |
| <b>Computer Laboratory</b>  | <b>Cost<br/>(Rs in Lakhs)</b> |
|  <p>Desktop computers with softwares (42 Nos.)</p>  | <b>20.38</b>                  |
| <b>Total</b>  | <b>20.38</b>                  |


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| Foundry and Sand Testing Laboratory   | Cost<br>(Rs in Lakhs)                |
|---|--------------------------------------|
| <ul style="list-style-type: none"> <li>• Crucible induction furnace</li> <li>• Centrifugal Casting machines</li> <li>• Muller mixer</li> <li>• Sieve Shaker</li> <li>• Sand testing equipment: Muller mixer, Permeability meter.<br/>Rammer etc.</li> </ul> | 6.47<br>1.50<br>0.50<br>0.60<br>1.50 |
| <b>Total</b>  | <b>10.57</b>                         |

| Workshop   | Cost<br>(Rs in Lakhs)                        |
|--|--|
|  <ul style="list-style-type: none"> <li>• Abrasive cut-off machine</li> <li>• Hacksaw machine</li> <li>• Rolling Mill</li> <li>• Jaw Crushers and Roll Crusher</li> <li>• Injection Moulding machine</li> <li>• Muffle furnace ( 3 nos)</li> </ul> | 1.60<br>1.14<br>2.40<br>1.00<br>9.00<br>1.59 |
| <b>Total</b>   | <b>16.73</b>                                 |


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| Polymer and Composites lab   | Cost<br>(Rs in Lakhs)   |
|--|---|
|    |   |
| <ul style="list-style-type: none"> <li>• Hot Compaction Machine</li> <li>• Izod Impact Testing Machine (For Polymer)</li> <li>• Melt Flow Indexer</li> <li>• UTM machine (2 T) for Polymer and Composites Testing</li> <li>• Twin screw extruder (Aasabi make)</li> <li>• VST/HDT Apparatus</li> </ul> | <p>0.88</p> <p>0.44</p> <p>0.73</p> <p>3.35</p> <p>3.25</p> <p>21.0</p> <p>1.60</p> |
| <b>Total</b>   | <b>31.25</b>  |

| Nanocomposites Lab  | Cost<br>(Rs in Lakhs)   |
|---|---|
|   |   |
| <ul style="list-style-type: none"> <li>• Four Points Probe Conductivity Meter</li> <li>• Precision Impedance Analyzer</li> <li>• 7.5 Digits Digital Multimeter</li> <li>• Electrometer</li> <li>• Dilatometer</li> <li>• Thermogravimetric Analyzer</li> <li>• Differential scanning calorimetry (DSC)</li> </ul> | <p>7.4</p> <p>7.6</p> <p>2.5</p> <p>6.82</p> <p>24.00</p> <p>12.0</p> <p>18.5</p> |
| <b>Total</b>  | <b>78.82</b>  |





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| Advanced Materials Technology Lab  | Cost<br>(Rs in Lakhs)   |
|--|---|
|  <ul style="list-style-type: none"> <li>• FTIR spectrometer</li> <li>• UV spectrophotometer</li> <li>• Galvanostat/ Potentiostat Interface 1000</li> <li>• Galvanostat/ Potentiostat,600, USA (Courtesy of EATON)</li> <li>• Weighing balance</li> </ul> | <p style="text-align: right;">7.05</p> <p style="text-align: right;">2.81</p> <p style="text-align: right;">12.54</p> <p style="text-align: right;">6.50</p> <p style="text-align: right;">0.50</p> |
| <b>Total</b>   | <b>29.40</b>  |

| Laser Material Processing   | Cost<br>(Rs in Lakhs)  |
|---|--|
|  <p>X-Y CNC Table, Scantech</p> <p>Fiber Laser set-up (400 w)</p>  | <p style="text-align: right;">5.80</p> <p style="text-align: right;">26.46</p>                                       |
| <b>Grand Total</b>  | <b>32.26</b>   |
| Surface Engineering Laboratory  | Cost<br>(Rs in Lakhs)  |
| <ul style="list-style-type: none"> <li>• Thermal Spray Coater</li> <li>• Wire Flame Spray System with Spray Booth</li> <li>• Powder Flame Spray System with Portable Grit Blasting</li> </ul> | <p style="text-align: right;">4.10</p> <p style="text-align: right;">3.80</p> <p style="text-align: right;">4.10</p> |
| <b>Grand Total</b>  | <b>12.00</b>   |

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| Scanning Electron Microscope (SEM) Laboratory   | Cost<br>(Rs in Lakhs) |
|---|-----------------------|
|                    |                       |
| Field Emission Scanning Electron Microscope (FE-SEM) with EDS detector and Sputter (TEQIP Phase-II) | 182                   |
| <b>Grand total</b>  | <b>182</b>            |

| X-Ray Diffraction (XRD) Laboratory  | Cost<br>(Rs in Lakhs) |
|---|-----------------------|
|  |                       |
| Bruker D8 Advance XRD System  | 100.5                 |
| <b>Grand total</b>  | <b>100.5</b>          |

| <b>Summary of Equipments</b> |                                      |                   |                                  |
|------------------------------|--------------------------------------|-------------------|----------------------------------|
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| 1                            | Metallurgy and Materials Engineering | 18                | 840.11                           |