









Mechanical Engineering Department

Equipment Summary			
Sr. No.	Name of the Department	Total No. of Labs	Equipment Cost (Rs. in Lakhs)
2	Mechanical Engineering	17	848.64

Name of Laboratory	Cost (Rs in Lakhs)
Microsystems Engineering Lab	
<div style="display: flex; justify-content: space-around;">    </div> <ul style="list-style-type: none"> • 4-Axis CNC WEDM along with software • Nd: YAG pulse laser system along with 4 axis CNC gantry • 4- Axis CNC Milling Machine • microbalance • spot welding machine • stud welding machine • Mikrotol multi-purpose machining centre • Laser alignment system • Fiber laser system • Micro-Hardness tester • Laser Micrometer • Surface roughness measuring machine • XY Motorized Precision stage with controller • Digital Storage Oscilloscope • Metallographic Microscope make 'Nikon' LV150L • XYθ Motorized Precision stage with controller • 3 D profilometer 	<p>19.97</p> <p>26.74</p> <p>7.63</p> <p>1.63</p> <p>1.36</p> <p>1.63</p> <p>55.24</p> <p>9.87</p> <p>19.68</p> <p>6.99</p> <p>4.11</p> <p>3.99</p> <p>1.74</p> <p>2.99</p> <p>10.96</p> <p>2.06</p> <p>9.00</p>
Total	183.85

Forbes Marshall Steam Technology Center	Cost (Rs in Lakhs)
<div style="display: flex; justify-content: space-around;">    </div> <ul style="list-style-type: none"> • Packaged Boiler, 750 Kg/hr., 10 bar at 190oC • Thermocompressor, 	<p>50.00</p>



Estd-1854


<ul style="list-style-type: none"> • Steam trap test rig • Effimax online efficiency monitoring system 	
Total	50.00


Fuels and Testing Lab	Cost (Rs in Lakhs)
<p>Computerized Multi-fuel Research Engine Test Rig PC based Computerized</p> <p>Multi cylinder Petrol Engine Test rig</p> <p>i) Wagon R Engine</p> <p>ii) Instrumentation</p> <p>iii) P-Theta software</p> <ul style="list-style-type: none"> • Dynamometer VCR Component –I • VCR Component –II (D C Dynamometer) • 5 Gas Exhaust analyzer, Smoke meter • Computeries twin cylinder four stroke diesel engine with open ECU 	<p>9.6</p> <p>1.01</p> <p>1.27</p> <p>3.00</p> <p>3.74</p> <p>1.13</p> <p>3.37</p> <p>4.5</p> <p>12.97</p>
Total	40.59

Fluid Machinery Lab	Cost (Rs in Lakhs)




<ul style="list-style-type: none"> Francis Turbine Pelton wheel Kaplan Turbines Electro Hydraulic trainer 	<p>3.10</p> <p>2.98</p> <p>3.28</p> <p>1.45</p>
Total	10.81




Eaton Fluid Power Lab	Cost (Rs in Lakhs)
 <ul style="list-style-type: none"> Eaton fluid power simulator Gear Pump Test rig Hydraulic Press Hydraulic Cut section 	<p>27.00</p> <p>1.65</p> <p>1.00</p> <p>11.21</p>
Total	40.86

I.C.Engine Lab	Cost (Rs in Lakhs)
 <ul style="list-style-type: none"> 4 cylinder TCDE Test rig (a) Instrumentation and Dynamometer (b) Engine- Donated by TATA Motors Horiba Gas Analyzer Cooling Tower 4 cylinder TCDE Test rig RICARDO Simulation Software (1-D and 3-D Engine Simulation) <p style="text-align: right;">Donated by Kirloskar Oil Engines, Pune</p>	<p>35.00</p> <p>35.00</p> <p>3.0</p> <p>3.5</p> <p>--</p>



• AVL Boost Simulation Software (1-D and 3-D Engine Simulation)	--
Total	76.5

Heat Transfer Lab	Cost (Rs in Lakhs)
 <p>Air Flow Bench with Data Acquisition system. Flow Visualization using smoke technique. Thermal Imager, Attachment for experimentation on Single and Mutlijet impingement</p> <p>Emissivity Measurement Stefan Boltzmann Apparatus</p> <ul style="list-style-type: none"> • Pin fin apparatus, • Stefan Boltzmann apparatus, • Forced convection apparatus, • Emissivity measurement apparatus, • Thermal conductivity of insulating powder apparatus, • Thermal conductivity of liquid apparatus, • Heat exchanger apparatus, • Drop and film wise condensation apparatus, • Computerized Heat Exchanger test rig. 	16.00
Total	16.00

Vibration and Acoustics lab	Cost (in Rs. Lacs)
  	
Electro-dynamic Vibration Shaker with Controller and Power Amplifier	12.15
Modal Shaker	2.53
4-Channel Vibration Analyzer, Impulse Hammers, Miniature tri-axial accelerometers, Pressure field microphones	3.67
Vibration analysis software, Modal analysis software, Non-contacting type tachometer	4.47
Total	22.82

Sound and Vibration Lab	Cost (in Rs. Lacs)




		<p>6.75 1.3</p>
<p>LMS Virtual Lab Software CD COMSOL version 4 Software CD</p>		<p>Total 8.05</p>


Stress Analysis lab	Cost (in Rs. Lacs)
	<p>9.76 9.56 1.33 1.32 4.72</p>
<ul style="list-style-type: none"> • Universal Testing Machine (100 kN) • Computerized Axial Fatigue Testing Machine (40 kN) • Diffused Light Polariscope • Oscilloscope 4 Channel • Fatigue Testing Machine (Bending fatigue) 	<p>Total 26.69</p>

Theory of Machines Lab	Cost (Rs in Lakhs)
	<p>10.00 2.5 10.00 2.5</p>
<ul style="list-style-type: none"> • Wear Test rig • Balancing Apparatus • Universal Vibration rig • Cam analysis apparatus • Universal Governor Apparatus 	<p>Total 25.00</p>

CAD-CAM Lab and Design Optimization	Cost (Rs in Lakhs)
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Auto CAD		9.00
CATIA		8.94
Ansys		8.32
TK Solver Rel.5.0 Software		4.95
Optistruct		8.52
Hyperworks		23.16
ProEnginners		8.33
Creo		17.00
Total		88.22

ECM- Non Conventional Energy Lab		Cost (Rs in Lakhs)
		
<ul style="list-style-type: none"> • Ultrasonic Flow meter • Gas Chromatograph • 4 Heliostat Assembly • Trainer solar photovoltaic power generation • Solar flat plate collector • Trainer storage technology • Parabolic trough collector trainer • Test rig energy Audit 3 centrifugal Pumps • Test set up for evaluating performance of different solar photovoltaic panels 	1.7 4.77 8.20 3.3 2.83 6.3 4.25 1.4 1.05	
Total		33.8

Particle Image Velocimetry Laboratory	Cost Rs. in Lakhs
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	<p>42.41</p> <p>1.5</p>
<ul style="list-style-type: none"> • Integrated Particle Image Velocimetry System • Experimental set up of flow visualization for flow around multiple bluff bodies 	
Total	43.91 Lakhs

PG Computational laboratory	Cost Rs. in Lakhs
	
<ul style="list-style-type: none"> • Computational Cluster • Workstations (12 Nos.) • Workstations (5 Nos.) • ANSYS 	<p>22.83</p> <p>11.28</p> <p>5.625</p> <p>28.00</p>
Total	67.735

Danfoss centre of Excellence Refrigeration and Air conditioning lab	Cost Rs. in Lakhs
	



<ul style="list-style-type: none"> • Vapour compression test rig • Air conditioning Test rig • Domestic refrigerator test rig • Water cooler test rig • Ice Plant • Test chamber • Condenser test rig 	45.00 2.5 0.5 2.5 5.6 1.96
Total	58.06

Laser and combustion Laboratory	Cost Rs. in Lakhs
 <ul style="list-style-type: none"> • Nd:YAG Laser • i-SFEED 3 Camera • Rigid Optical Table • Constant volume combustion chamber • Laser Energy Meter 	55.75
Total	55.75