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Department of Mechanical Engineering
Thermal Engineering Laboratory Equipment Details

S.No	Name of the equipment	Description of the equipment	Quantity
1	Guarded Plate Apparatus	To determine thermal conductivity and to identify the given insulation material using guarded plate apparatus	01
2	Lagged Pipe Apparatus	To determine thermal conductivity of the given pipe insulation materials (asbestos and saw dust) using lagged pipe apparatus	01
3	Vertical Cylinder Apparatus	To conduct an experiment on vertical cylinder apparatus and to determine the theoretical heat transfer coefficient and experimental heat transfer coefficient of air under natural / free convection from a vertical cylinder	01
4	Inside Tube Apparatus	To conduct an experiment on inside tube cylinder apparatus and to determine the theoretical heat transfer coefficient and experimental heat transfer coefficient of air flowing inside a circular duct / tube / pipe under forced convection	01

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5	Composite Wall Apparatus	To determine thermal conductivity of the given composite wall using composite wall apparatus	01
6	Insulating Powder Apparatus	To determine thermal conductivity of the given insulation powder material using insulating powder apparatus	01
7	Pin-Fin Apparatus	To conduct an experiment on pin-fin apparatus and to determine the heat transfer rate, efficiency and effectiveness of pin-fin in natural / forced convection mode	01
8	Stefan Boltzmann Apparatus	To determine Stefan Boltzmann constant using Stefan Boltzmann apparatus	01
9	Emissivity Measurement Apparatus	To determine emissivity of a grey surface using emissivity measurement apparatus	01
10	Parallel / Counter Flow Heat Exchanger Apparatus	To conduct a heat transfer test on the given heat exchanger apparatus in parallel / counter flow arrangement and to determine the heat transfer rate, overall	01

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		heat transfer co-efficient and effectiveness of the heat exchanger	
11	Refrigeration (R12) Test Rig	To conduct a performance test on the given refrigeration test rig and to determine its theoretical coefficient of performance and actual coefficient of performance	01
12	Air-Conditioning Test Rig	To conduct a performance test on the given air-conditioning test rig and to determine its theoretical coefficient of performance and actual coefficient of performance	01
13	Reciprocating Air Compressor Set Up	To conduct performance test on a two stage reciprocating air compressor and to draw the characteristic curves of a two stage reciprocating air compressor	01
14	Refrigeration (HC) Test Rig	To conduct a performance test on the given refrigeration test rig and to determine its theoretical coefficient of	01

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		performance and actual coefficient of performance	
15	Cooling Tower Set Upapparatus	To conduct a performance test on the cooling tower and to determine its effectiveness, cooling capacity and make up water requirement	01
16	Four Stroke Single Cylinder Diesel Engine (Kirloskar Make)	To conduct performance and heat balance test on the given engine & to draw the performance curves.	01
17	Multi Cylinder (Twin) Four Stroke Diesel Engine. (Kirloskar Make)	To conduct performance and heat balance test on the given engine & to draw the performance curves.	01
18	Two Stroke Single Cylinder Petrol Engine (Bajaj Make)	To conduct performance test on the given engine & to draw the performance curves.	01
19	Cleave land Flash & Fire Point	To determine the flash point of given oil by flash point apparatus.	01
20	Redwood Viscometer	To determine the viscosity of diesel using redwood viscometer at different temperatures	01

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21	Saybolt Viscometer	To determine viscosity of the given oil using Say Bolt Viscometer at different temperatures expressed in terms of Say bolt seconds.	01
22	Single Cylinder Four Stroke Petrol Engine : Cut Section Model	To draw port timing diagram for a given 4 stroke petrol engine	01
23	Single Cylinder Four Stroke Diesel Engine : Cut Section Model	To draw valve timing diagram for given engine and calculate different periods.	01
24	Four Stroke Single Cylinder Petrol Engine : (Enfield Make)	To conduct performance test on the given engine & to draw the performance curves.	01
25	Multi Cylinder Four Stroke Petrol Engine (ISUZU Make)	To Conduct Performance Test, Morse Test & to draw heat balance on given multi cylinder engine to find the overall efficiency of the engine	01
26	Orsat Gas Analyzer Apparatus	To determine the composition of the carbon dioxide, oxygen, nitrogen and carbon monoxide.	01

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27	Air Blower Test Rig	To determine the performance analysis and to plot the various curves for blower.	01
28	Slow Speed Horizontal Diesel Engine (Ruston Make)	To conduct performance and heat balance test on the given engine & to draw the performance curves.	01
29	Four Stroke High Speed Diesel Engine (Greeves Make)	<="" p="" style="box-sizing: border-box;">	01
30	Two Stroke Cut Section Model : Petrol Engine	To draw port timing diagram for a given 2stroke petrol engine	01
31	Single Cylinder Four Stroke Diesel Engine : (Texvel Make)	To conduct performance test on the given engine & to draw the performance curves.	01
32	Wind Tunnel	To measure the pressure distribution at various angles and to determine the drag co-efficient of the wing.	01
33	Single Cylinder Four Stroke Diesel Engine (Hydraulic Dynamometer Loading)	To conduct performance and heat balance test on the given engine & to draw the performance curves..	01

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34	Single Cylinder Four Stroke Petrol Engine (Eddy Current Dynamometer Loading)	To conduct performance and heat balance test on the given engine & to draw the performance curves..	01
35	Computerized Research Engine Test Set up.	This Engine is used for research purpose.	01
36	Automotive Exhaust Gas Analyzer	The exhaust gas test rig is used to analyze the amount of particulate matter present in exhaust gas.	01
37	Steam Turbine Test Rig	To study the working of steam turbine	01