Faculty of Mechanical Engineering

M.E. Energy Engineering

(R 2021) Semester – I

Course Code: EY 4111 Course Title: Renewable Energy Laboratory		
Sl.No.	**Description of Equipment**	**Required Numbers (for batch of 25 students)**
1.	a. Pyranometer b. Pyrhelio meter c. Sunshine recorder	1 1 1
2.	Solar Flat Plate Collector Training System	1
3.	Solar Photovoltaic Training kit	1
4.	a. Box type cooker b. Parabolic Dish Collector with cooker	1 1
5.	a. Conventional cook stove (chulha) b. Energy efficient cook stove	1 1
6.	a. Gasifier test rig capable of operating under updraught and downdraught mode b. Cut section model of Fixed dome biogas plant c. Cut section model of Floating drum biogas plant	1 1 1
7.	a. Precision Industrial Balance b. Muffle furnace with control unit c. Ceramic crucibles, tongs, desiccator	1 1 1
8.	Bomb Calorimeter test set up	1
9.	Junker's Calorimeter test set up	1
10.	Lab-scale biodiesel production unit with accessories	1
11.	Diesel engine test rig with two fuel tanks	1
12.	a. Flue gas analyser b. Smoke meter c. In-cylinder pressure measurement and crank angle encoder for determination of P-0,PV diagram, HRR and CHRR	1 1 1

Faculty of Mechanical Engineering

M.E. Energy Engineering

(R 2021) Semester - I

Course Code: EY 4112 Course Title: Applied Thermal Engineering Laboratory		
Sl.No.	**Description of Equipment**	**Required Numbers (for batch of 25 students)**
1.	Boundary layer investigation apparatus	1
2.	Temperature Calibrator provided with thermocouple, RTD and thermistors	1
3.	Pressure Calibrator	1
4.	Rankine cycle Test setup	1
5.	• Hydrometer • Viscometer • Flash point and fire point apparatus • Thermal Analyzer • Surface tension measuring kit	1 1 1 1 1
6.	Pool boiling apparatus with flow visualization	1
7.	Wind tunnel test rig with accessories	1
8.	Fluidized bed characteristics apparatus	1
9.	Absorption Refrigeration system test setup	1
10.	Agro product dryer with hygrometer & digital weigh balance	1
11.	A single cylinder IC engine with in-cylinder pressure measurement coupled with crank angle encoder for determining PV plots	1

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M.E. Energy Engineering

(R 2021) Semester - II

EY4211 ENERGY CONSERVATION LABORATORY

Sl.No	Description of Equipment	Required Numbers for batch of 25 Students
1	Energy Auditing Instruments:	
	(i) Flue gas analyser	1
	(ii) Calorimeter	1
	(iii) Pitot tube	1
	(iv) Digital pressure indicator	1
	(v) Differential manometer	1
	(vi) Anemometer – vane type & thermal type	1
	(vii) Digital tachometer – contact & non-contact	1
	(viii) Stroboscope	1
	(ix) Hygrometer	1
	(x) Temperature indicator –contact type & non-contact type	1
	(xi) Ultrasonic leak detector	1
	(xii) Ultrasonic flow meter	1
	(xiii) Lux meter	1
	(xiv) Energy manager	1
	(xv) Harmonic Analyzer	1
	(xvi) KVA demand Analyzer	1
		1
2	Boiler Test Rig	1
3	Steam Turbine Test Rig	1
4	Steam Condenser Test Rig	1

5	Air compressor Test Rig	1
6	Induction Motor coupled with suitable loading mechanism	1
7	Pumping system with discharge controls including VFD, Throttling	1
8	Different type of luminaries coupled to power measurement unit	1
9	Blower test rig with damper control at inlet and discharge	1
10	Cooling Tower Test rig	1
11	a. Shell and tube Heat exchanger b. Pipe-in-pipe Heat Exchanger c. Plate Heat Exchanger	1

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(R 2021) Semester - II

EY4212 ANALYSIS AND SIMULATION LABORATORY FOR ENERGY ENGINEERING

Sl.No	Description of Equipment	Required Numbers for batch of 25 Students
1	Computer with keyboard and Optical Mouse (Minimum configuration : 8 GB Ram, i7 Processor, 2 GB Dedicated graphics card)	25
2	Any one software among the following: • ANSYS (FLUENT / CFX) • COMSOL MULTI PHYSICS • FLUIDYN Equation Solving softwares (Any one among the following) • MATLAB (SIMULINK) • EES	25 license
3	Colour Printer	01