BMEE303P	Thermal Engineering Systems Lab	L	T	P	C
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Pre-requisite	**BMEE203L**	**Syllabus version**			
		1.0			

Course Objectives

1. To apply theoretical knowledge gained in theory and get hands-on experience of the topic.
2. To train students practically with the procedures for testing of engines, air compressor, refrigeration and air conditioning.
3. To equip the students to analyse the experimental data of IC engines, air compressor, refrigeration and air conditioning.

Course Outcomes

At the end of the course, the student will be able to

1. Conduct the experiments on IC engines to assess their performance.
2. Perform experiments on refrigeration and air conditioning systems to predict their COP.
3. Conduct the experiments on air compressor and air blower to assess their performance.

Indicative Experiments	
1.	Draw the valve timing and port timing diagram for the given engines and compare with the theoretical value and give your comments.
2.	Compare the properties of different fuels by performing flash point, fire point, viscosity and calorific value tests and find out which is suitable for the better performance of the given engine.
3.	Compare the performance of a single-cylinder CI engine connected with different dynamometers and suggest a suitable dynamometer for better accuracy of the results.
4.	Compare the energy distribution of a single-cylinder CI engine connected with different dynamometers and suggest a suitable dynamometer for better accuracy of the results.
5.	Do the performance test on a single-cylinder SI engine and compare your results with the engine specifications. Suggest a suitable method to improve the accuracy of your results.
6.	Determine the friction power of a given four-cylinder petrol engine by performing Morse test and compare the results with Willan's line method.
7.	Determine the friction power of a given single-cylinder diesel engine by performing retardation test and compare the results with Willan's line method.
8.	Determine the actual index of compression and compare with the isentropic compression for a given reciprocating air compressor.
9.	Compare the performance of air blower with different vane profiles.
10.	Calculate the COP of the given vapor compression refrigeration system and air-conditioning system and compare with the theoretical calculation.
11.	Compare the power output for the steam turbine at different load conditions.
12.	Compare the boiler efficiency for different load levels for the given boiler.
	Total Laboratory Hours | 30 hours

Text Book

1. Lab manual prepared by the faculty.

Mode of assessment: Continuous assessment, FAT, Oral examination

Recommended by Board of Studies	09-03-2022		
Approved by Academic Council	No. 65	Date	17-03-2022