COURSE TITLE : HEAT ENGINES LABORATORY
COURSE CODE : 4027
COURSE CATEGORY : B
PERIODS/ WEEK : 3
PERIODS/ SEMESTER : 45
CREDIT : 2

TIME SCHEDULE

MODULE	TOPIC	PERIODS
1	Study of petrol engines. Valve timing diagrams	10
2	Load test on petrol and diesel engines.	12
3	Viscometer. Flash and fire point apparatus. Calorimeters. Heat Exchanger	11
4	Refrigeration equipments. Air compressor	12
TOTAL		45

COURSE OUTCOME :

Sl.No.	Sub	Student Will Be Able To
1	1	Understand the systems of petrol and diesel engines.
	2	Comprehend the preparation of valve timing diagram.
	3	Appreciate the load test on engine.
2	4	Understand the viscosity, calorific value,flash point, firepoint of fuels & Heat Exchangers
	5	Comprehend the working of refrigeration plant and determine C.O.P.
	6	Understand the working of air compressor.

SPECIFIC OUTCOME

MODULE I

1.1 Study the parts and functions of the petrol engine.
1.2 Identify the various systems in IC Engines - intake system, exhaust system, lubricating system , cooling system, electrical system, fuel system & loading system
1.3 Conduct different tests on petrol engine – load test, heat balance test, valve timing diagram, Morse test.
1.4 Compare the values, draw various characteristic curves and obtain economic speed & power.

MODULE II

2.1 Study the parts and functions of diesel engine.
2.2 Identify the various systems in Diesel Engines - intake system, exhaust system, lubricating system, fuel system, cooling system.
2.3 Conducting different tests on diesel engine – load test, heat balance test, valve timing diagram.
2.4 Compare the values, draw various characteristic curves and obtain economic speed & power.

MODULE III

3.1 Perform the test on lubricating oils.
3.2 Determine the viscosity of the given oil.
3.3 Determine the flash and fire point of the given oil.
3.4 Determine the calorific value of given solid fuels.
3.5 Determine the calorific value of the given liquid fuel.
3.6 Conduct a test on Parallel and counter flow heat exchanger apparatus.

MODULE IV

4.1 Identify the refrigeration plant; study the function of each component.
4.2 Performance tests on refrigerators.
4.3 Determine the COP of the refrigerator.
4.4 Identify the various parts and indicate the functions.
4.5 Conduct a test on air compressor and determine volumetric efficiency, isothermal efficiency & adiabatic efficiency

TEXT BOOKS

1. Mechanical Workshop & Laboratory Manual By K. C. John