**RJLB Govt. Polytechnic, Loharu**

***LECTURE PLAN (FEB 2024 - JUNE 2024)***

**BRANCH:** MECH ENGG **SEMESTER: 4th**

**SUBJECT:** THERMODYNAMICS-II

**NAME OF FACULTY**: PARVEEN KUMAR

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| **Sr.****No.** | **Name of Topic** | **No. of Lectures** |
| **UNIT -1: Chapter 1 - I C Engines** |
| 1 | Introduction and classification of IC engine | 1 |
| 2 | Description of Carnot cycle, Otto cycle, diesel cycle with PV and TS diagram | 1 |
| 3 | Working principle of two stroke and four stroke cycle, SI engines  | 1 |
| 4 | Working principle of two stroke and four stroke cycle, CI engines | 1 |
| 5 | Location and functions of various parts of IC engines and materials used for them  | 1 |
| 6 | Basic terms such as bore, TDC, BDC, Stroke, Crank throw, piston speed and compression ratio  | 1 |
| 7 | Valve timing diagram for four stroke CI and SI engines  | 1 |
| 8 | Comparison between SI and CI engines, comparison between two stroke and four stroke engines  | 1 |
|  **Chapter -2- Fuel Supply and Ignition System in Petrol Engine** |
| 9 | Concept of carburetion  | 1 |
| 10 | Air fuel ratio, mixture required at different conditions and loads on engine.  | 1 |
| 11 | Simple carburetor and its limitations and application. Working of Solex carburetor.  | 1 |
| 12 | Description of petrol injection system (MPFI)  | 1 |
| 13 | Description of battery coil and electronic ignition system  | 1 |
| **UNIT II : Chapter -3- Fuel System of Diesel Engine** |
| 14 | Components of fuel supply system of Diesel engine  | 1 |
| 15 | Description and working of fuel feed pump  | 1 |
| 16 | Fuel injection pump, fuel injectors and fuel filters  | 1 |
| 17 | Types of Fuel injection systems in diesel engine  | 1 |
| **Chapter -4- Cooling and Lubrication** |
| 18 | Function of cooling system in IC engine  | 1 |
| 19 | Air cooling and water cooling system, use of thermostat and radiator.  | 1 |
| 20 | Function and types of coolant  | 1 |
| 21 | Function of lubrication , Lubrication system of IC engine  | 1 |
| **UNIT III :Chapter -5- Testing of IC Engines** |
| 22 | Engine power - indicated and brake power | 1 |
| 23 | Efficiency - mechanical, thermal. relative and volumetric  | 1 |
| 24 | Methods of finding indicated and brake power  | 1 |
| 25 | Morse test for petrol engine  | 1 |
| 26 | Heat balance sheet, simple numerical problems  | 1 |
| 27 | Concept of pollutants in SI and CI engines, pollution control, norms for two or four wheelers. | 1 |
| 28 | Bharat stage emission standards (BS Norms), Methods of reducing pollution in IC engines . | 1 |
| **UNIT IV : Chapter -6- Steam Turbines and Steam Condensers** |
| 29 | Introduction, main parts, uses and classification of steam turbine  | 1 |
| 30 | Construction and working principle of impulse and reaction steam turbines and comparison  | 1 |
| 31 | Governing of steam turbines  | 1 |
| 32 | Steam nozzles - types and applications  | 1 |
| 33 | Function of a steam condenser,  | 1 |
| 34 | elements of condensing plant and types of steam condenser (Jet and surface).  | 1 |
| 35 | Comparison between jet condenser and surface condenser  | 1 |
| 36 | Cooling pond and cooling towers  | 1 |
| **UNIT V : Chapter -7- Gas Turbines and Jet Propulsion** |
| 37 | Classification, open cycle gas turbine and closed cycle gas turbine,  | 1 |
| 38 | Comparison of gas turbines with reciprocating IC engines,  | 1 |
| 39 | Applications and limitations of gas turbine | 1 |
| 40 | Open cycle constant pressure gas turbines - general layout | 1 |
| 41 | PV and TS diagram and working of gas turbine | 1 |
| 42 | Closed cycle gas turbines, PV and TS diagram and working | 1 |
| 43 | Principle of operation of ram-jet engine | 1 |
| 44 | Principle of operation of turbo jet engine - application of jet engines | 1 |
| 45 | Supercharger and turbocharger engine. | 1 |