**RJLB Govt. Polytechnic, Loharu**

***LECTURE PLAN***

**BRANCH:** ME **SEMESTER: 4th**

**SUBJECT:** THERMODYNAMICS-II

**NAME OF FACULTY**: RAVI KANT

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| **S.**  **No.** | **Name of Topic** | **No. of Lectures** |
| **Chapter -1- I C Engines** | | |
| 1 | Introduction | 1 |
| 2 | Working principle of two stroke cycle | 1 |
| 3 | Working principle of four stroke cycle, , and | 1 |
| 4 | SI engines and CI engines | 1 |
| 5 | Otto cycle, diesel cycle | 1 |
| 6 | Dual cycle | 1 |
| 7 | Location and functions of various parts of IC engines and materials used for them | 1 |
| **Chapter -2- Fuel Supply and Ignition System in Petrol Engine** | | |
| 8 | Concept of carburetion | 1 |
| 9 | Air fuel ratio, Simple carburetor and its limitations and application. | 1 |
| 10 | Description of battery coil ignition system | 1 |
| 11 | Description of electronic ignition system | 1 |
| 12 | fault finding/ and remedial action in ignition system | 1 |
| 13 | Description of petrol injection system | 1 |
| **Chapter -3- Fuel System of Diesel Engine** | | |
| 14 | Components of fuel system | 1 |
| 15 | Description and working of fuel feed pump | 1 |
| 16 | Fuel injection pump, Common rail direct injection (CRDI) | 1 |
| 17 | Injectors | 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 of lubrication | 1 |
| 21 | Types and properties of lubricant | 1 |
| 22 | Lubrication system of engine | 1 |
| 23 | Fault finding in cooling and remedial action | 1 |
| 24 | Fault finding in lubrication and remedial action | 1 |
| **Chapter -5- Testing of IC Engines** | | |
| 25 | Engine power - indicated and brake power | 1 |
| 26 | Efficiency - mechanical, thermal. relative and volumetric | 1 |
| 27 | Methods of finding indicated and brake power | 1 |
| 28 | Morse test for petro1 engine | 1 |
| 29 | Heat balance sheet, simple numerical problems | 1 |
| 30 | Concept of pollutants in SI and CI engines, pollution control, norms for two or four wheelers - EURO - 1, EURO - 2 | 1 |
| 31 | Bharat methods of reducing pollution in IC engines, alternative fuels like CNG, LPG, Hydrogen | 1 |
| **Chapter -6- Steam Turbines and Steam Condensers** | | |
| 32 | Function and use of steam turbine | 1 |
| 33 | Steam nozzles - types and applications | 1 |
| 34 | construction and working principle of impulse turbine | 1 |
| 35 | construction and working principle of reaction turbine simple and compound | 1 |
| 36 | Governing of steam turbines | 1 |
| 37 | Function of a steam condenser, elements of condensing plant | 1 |
| 38 | jet condenser | 1 |
| 39 | surface condenser | 1 |
| **Chapter -7- Gas Turbines and Jet Propulsion** | | |
| 40 | Classification, open cycle gas turbine and closed cycle gas turbine, | 1 |
| 41 | comparison of gas turbines with reciprocating IC engines, applications and limitations of gas turbine | 1 |
| 42 | Open cycle constant pressure gas turbines - general layout | 1 |
| 43 | PV and TS diagram and working of gas turbine | 1 |
| 44 | Closed cycle gas turbines, PV and TS diagram and working | 1 |
| 45 | Principle of operation of ram-jet engine | 1 |
| 46 | Principle of operation of turbo jet engine - application of jet engines | 1 |
| 47 | Rocket engine - its principle of working and applications | 1 |
| 48 | Fuels used in jet propulsion | 1 |