**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 |