LESSON PLAN

Name of the Faculty : Preeti

Discipline : Mechanical Engg. Semester : 4th Subject :TD-2

Lesson plan duration :16 weeks (from 06 March,2023 to 23 June, 2023*)*

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| WEEK | THEORY | | PRACTICAL | |
| Lecture Day | Topic (including assignments /tests) | Practical Day | Topic |
| WEEK 1 | 1st day | Introduction of ic engine  Working principle of two stroke and four stroke cycle, | 1st day | Dismantle an IC engine and note down the condition of various parts, removal and fitting of piston, rings, measuring of bore size, crank shaft ovality and assemble it. |
| 2ndday | SI engines and CI engines, Ottocycle, diesel cycle |
| 3rdday | dual cycle Location and functions of various parts of IC engines and materials used for them |
| WEEK 2 | 1st day | *Numeric*als | 1st day | Dismantle an IC engine and note down the condition of various parts, removal and fitting of piston, rings, measuring of bore size, crank shaft ovality and assemble it. |
| 2ndday | Working principle of two stroke and four stroke cycle |
| 3rdday | IC engines and materials used for them |
| WEEK 3 | 1st day | *Unit test* | 1st day | Dismantle a carburetor |
| 2ndday | Fuel Supply and Ignition System in Petrol Engine |
| 3rdday | Concept of carburetion Air fuel ratio |
| WEEK 4 | 1st day | Simple carburetor and its limitations and application. | 1st day | Servicing of petrol injection system  . |
| 2nd day | Description of battery coil and electro ignition system, fault finding/ and remedial action in ignition system |
| 3rd day | Description of petrol injection system |
| WEEK 5 | 1st day | Fuel System of Diesel Engine Components of fuel system | 1st day | Valve servicing, grinding, lapping and fitting mechanism and tappet adjustment. |
| 2nd day | Description and working of fuel feed pump |
| 3rd day | Fuel injection pump, Common rail direct injection (CRDI)Injectors |
| WEEK 6 | 1st day | Cooling and Lubrication introduction | 1st day | Inspection of ignition system of a multi-cylinder engine stress ing inition timings, setting, fixing order and contact breaker; gap adjustment, spark plug cleaning. |
| 2nd day | Function of cooling system in IC engine |
| 3rd day | Air cooling and water cooling system,  use of thermostat and radiator. |
| WEEK 7 | 1st day | Function of lubrication Types and properties of lubricant | 1st day | Service of cooling &  lubrication system of IC engine and note down the functioning/testing of various  components. |
| 2nd day | Lubrication system of engine Fault finding in cooling SYSTEM |
| 3rd day | lubrication and remedial action |
| WEEK 8 | 1st day | unit test | 1st day | Determination of BHP by  dynamometer. |
| 2nd day | Revision |
| 3rd day | Revision |
| WEEK 9 | 1st day | Testing of IC Engines introduction | 1st day | Morse test on multi-  Cylinder petrol engine.  . |
| 2nd day | Engine power - indicated and brake power Efficiency |
| 3rd day | mechanical, thermal. relative and volumetric, Methods of finding indicated and brake power |
| WEEK 10 | 1st day | Methods of finding indicated and brake  power | 1st day | Local visit to roadways or private automobile workshop . |
| 2nd day | Morse test for petro1engine Heat balance sheet, simple |
| 3rd day | numerical problems Concept of pollutants in SI and CI engines |
| WEEK 11 | 1st day | pollution control, norms for two or  four wheelers - EURO - 1, EURO - 2, | 1st day | Local visit to roadways or private automobile workshop |
| 2nd day | Bharat methods of reducing pollution in IC engines, |
| 3rd day | alternative fuels like CNG, LPG, Hydrogen |
| WEEK 12 | 1st day | Revision | 1st day | Draw layout of modern automobile workshop and note down the special tool and equipments in each shop |
| 2nd day | *Unit test* |
| 3rd day | Steam Turbines and Steam Condensers |
| WEEK 13 | 1st day | Function and use of steam turbine | 1st day | Viva question |
| 2nd day | Steam nozzles – types and applications Steam turbines - |
| 3rd day | impulse, reaction, simple and compound construction and working principle |
| WEEK 14 | 1st day | Governing of steam turbines  Function of a steam condenser elements of condensing plant | 1st day | Viva question |
| 2nd day | Classification - jet condenser, surface condenser  Cooling pond and cooling towers Gas Turbines and Jet Propulsion |
| 3rd day | Classification, cycle gas turbine and closed cycle gas turbine, comparison of gas turbines with reciprocating IC engines, applications and limitations of gas turbine  Open cycle constant pressure gas turbines - general layout, PV and TS diagram and working of gas turbine |
| WEEK 15 | 1st day | Closed cycle gas turbines, PV and TS diagram and working | 1st day | Viva question |
| 2nd day | Principle of operation of ram-jet  engine and turbo jet engine |
| 3rd day | application of jet engines |
| WEEK 16 | 1st day | *Practice of previous paper* | 1st day | Viva question |
| 2nd day | Revision |
| 3rd day | *Practice of previous paper* |