|  |  |  |
| --- | --- | --- |
| Discipline : **MECHANICAL** **ENGG** | Semester : **4TH**  | Name of the Teaching Faculty: **MR MITHUN KUMAR KESHARI** |
| Subject: **THERMAL ENGG-II** | No. of days/per week class allotted: **04** | Semester From date : **02.01.2019** To Date: **15.04.2019**No. of Weeks: **15** |
| Week | Class Day | Theory / Practical Topics |
| 1ST  | 1ST  | Introduction to thermodynamics  |
|  | 2ND  | Introduction to Vapor Power cycles |
|  | 3RD  | Explain Steam Power Plant with its Layout |
|  | 4TH  | Explain Steam Power Plant with its Layout Contd. |
| 2ND  | 1ST  | Explain working of steam power plant cycle |
|  | 2ND  | Explain Carnot vapor cycle with property diagram |
|  | 3RD  | Explain Rankine vapor cycle with property diagram |
|  | 4TH  | Explain Rankine vapor cycle with property diagram Contd. |
| 3RD  | 1ST  | Explain modifications to Rankine vapor cycle |
|  | 2ND  | Problem solving |
|  | 3RD  | Explain the qualities of ideal working fluid of power cycle |
|  | 4TH  | Explain Binary vapor cycles |
| 4TH  | 1ST  | Previous year question discussion, Assignment |
|  | 2ND  | Introduction to Gas Power cycles |
|  | 3RD  | Explain the concept of I C engine |
|  | 4TH  | Explain the concept of I C engine contd. |
| 5TH  | 1ST  | Explain Otto cycle with property diagram |
|  | 2ND  | Explain Diesel cycle with property diagram |
|  | 3RD  | Explain Dual cycle with property diagram |
|  | 4TH  | Problem solving |
| 6TH  | 1ST  | Problem solving |
|  | 2ND  | Problem solving |
|  | 3RD  | Compare Otto, Diesel and Dual cycles |
|  | 4TH  | Differentiate between 2S and 4S engine |
| 7TH  | 1ST  | Previous year question discussion, Assignment |
|  | 2ND  | Introduction to Fuels and Combustion |
|  | 3RD  | Explain Hydrocarbon fuels |
|  | 4TH  | Explain the different combustion reactions |
| 8TH  | 1ST  | Explain the different combustion reactions contd. |
|  | 2ND  | Explain enthalpy of formation and enthalpy of reaction |
|  | 3RD  | Explain heating values for fuels |
|  | 4TH  | Explain Octane number |
| 9TH  | 1ST  | Explain Cetane number |
|  | 2ND  | Previous year question discussion, Assignment |
|  | 3RD  | Introduction to Heat transfer |
|  | 4TH  | Explain the different modes of heat transfer |
| 10TH  | 1ST  | State Fourier law of heat conduction, define thermal conductivity |
|  | 2ND  | Explain steady state heat conduction in solids |
|  | 3RD  | Problem solving |
|  | 4TH  | Explain convective heat transfer, State Newton’s law of cooling |
| 11TH  | 1ST  | Problem solving |
|  | 2ND  | Explain radiation heat transfer, State Stefan Boltzman law |
|  | 3RD  | Problem solving |
|  | 4TH  | Explain the different theories of radiation |
| 12TH  | 1ST  | Explain surface absorption, reflection and transmission |
|  | 2ND  | State Kirchhoff’s law |
|  | 3RD  | Define heat exchanger and classify it |
|  | 4TH  | Explain the different types of heat exchangers with its application |
| 13TH  | 1ST  | Explain the different types of heat exchangers with its application |
|  | 2ND  | Previous year question discussion, Assignment |
|  | 3RD  | Introduction to refrigeration cycles |
|  | 4TH  | Explain the concept of refrigerators and heat pumps |
| 14TH  | 1ST  | Problem solving |
|  | 2ND  | Explain reversed Carnot cycle with its limitations |
|  | 3RD  | Explain ideal vapor compression refrigeration cycle |
|  | 4TH  | Explain actual vapor compression refrigeration cycle |
| 15TH  | 1ST  | Explain actual vapor compression refrigeration cycle contd. |
|  | 2ND  | Introduction to Gas refrigeration cycle |
|  | 3RD  | Previous year question discussion, Assignment |
|  | 4TH  | Important question discussion |

**Learning Resouces:**

1. Thermal Engineering by M M Rathore, Mc Graw Hill Education
2. A textbook of Thermal Engg by R S Khurmi and J K Gupta, S Chand Publisher
3. Steam Tables by K K Ramalingam, Scitech Publication