UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING DEPARTMENT OF CERAMIC ENGINEERING

(2023-2024) LESSON PLAN

|  |  |  |
| --- | --- | --- |
| **Discipline: MECHANICAL** | **Semester: 3rd** | **Name of the Teaching faculty: Rashmita Paikray** |
| **Subject: Elementary Mechanical**  **Engineering** | **No of Days/ Week class allotted: 4** | **Semester from Date: 01/8/2023 To Date: / /2023**  **No of weeks: 15** |
| **Week** | **Class Day** | **Topics** |
| **1st** | 1st | Define shear force and bending moment. |
| 2nd | Construct shear force and bending moment diagram of simple supported beam  with point load. |
| 3rd | Construct shear force and bending moment diagram of simple supported beam  with uniformly distributed load. |
| 4th | Construct shear force and bending moment diagram of cantilever beam with point  load. |
| **2nd** | 1st | Construct shear force and bending moment diagram of cantilever beam with point  load. |
| 2nd | Construct shear force and bending moment diagram of simple supported beam  with point load and uniformly distributed load. |
| 3rd | Construct shear force and bending moment diagram of cantilever beam with point  load and uniformly distributed load. |
| 4th | Determine stress of loaded beams. |
| **3rd** | 1st | Determine stress of loaded beams. |
| 2nd | Determine stress of loaded beams. |
| 3rd | Define machine, mechanism, kinematics, link |
| 4th | Define kinematics pair, kinematics chain. |
| **4th** | 1st | Define machine, mechanism, kinematics, link, kinematics pair, kinematics chain |
| 2nd | Illustrate four – bar linkage, crank – connecting rod |
| 3rd | Illustrate quick return mechanism. |
| 4th | Assignment |
| **5th** | 1st | Understand function of a cam and follower. |
| 2nd | Classification of cam and follower. |
| 3rd | Determine the length of open belt drive. |
| 4th | Assignment |
| **6th** | 1st | Determine the ratio of tensions and power transmitted by belt drive. |
| 2nd | Discuss advantage of rope and chain drive. |
| 3rd | State working principle of simple brake |
| 4th | State working principle of dynamo meters. |
| **7th** | 1st | Define and classify bearings (bush and anti-friction). |
| 2nd | Define and classify bearings (bush and anti-friction). |
| 3rd | Define heat and work and derive inter – relationship. |
| 4th | Determine work done by compression and expansion of gases. |

|  |  |  |
| --- | --- | --- |
| **8th** | 1st | Determine work done by compression and expansion of gases. |
| 2nd | Explain properties of steam (sensible, latent heat & dryness fraction). |
| 3rd | Discuss use of steam tables. |
| 4th | Discuss use of steam tables. |
| **9th** | 1st | Explain the functions of the boiler. |
| 2nd | Explain the functions of the boiler. |
| 3rd | IA |
| 4th | Define fire tube, water tube, boiler. |
| **10th** | 1st | Define fire tube, water tube, boiler. |
| 2nd | Define fire tube, water tube, boiler. |
| 3rd | Define and classify steam turbines (impulse and reaction type and steam  condensers). |
| 4th | Define and classify steam turbines (impulse and reaction type and steam  condensers). |
| **11th** | 1st | Define and classify steam turbines (impulse and reaction type and steam  condensers). |
| 2nd | Define and classify steam turbines (impulse and reaction type and steam  condensers). |
| 3rd | Define and classify internal combustion (I.C.) engine. |
| 4th | Explain Otto and Diesel cycles. |
| **12th** | 1st | Explain Otto and Diesel cycles. |
| 2nd | Explain and compare 2 stroke and 4 stroke and I.C. engine. |
| 3rd | Define Indicate power, brake power and mech, efficient. |
| 4th | Define Indicate power, brake power and mech, efficient. |
| **13th** | 1st | Define Refrigeration and Air – conditioning and state various application. |
| 2nd | Explain simple vapour compression refrigeration system. |
| 3rd | Assignment |
| 4th | State types of refrigerants and explain their properties. |
| **14th** | 1st | Describe the basic concept of air – conditioning with reference to a room air conditioner. |
| 2nd | Describe the basic concept of air – conditioning with reference to a room air conditioner. |
| 3rd | Define machine tools. |
| 4th | Define machine tools. |
| **15th** | 1st | Describe different machine tools and their functions (lathe, drill, shaper, milling  machine and grinding machine). |
| 2nd | Describe different machine tools and their functions (lathe, drill, shaper, milling machine and grinding machine). |
| 3rd | Brief idea on CNC milling and CNC Turning. |
| 4th | PYQs Discussion |

**Signature of Faculty**