**LESSON PLAN**

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| **Discipline:** Mech. Engg. | **Semester:** Fifth (5th) | **Name of the Faculty:** Er Surya Kanta Kar |
| **Subject:** Design of Machine Elements | **No. of days/week class allotted:**  Five (5) | **Semester from Date:** 01.07.24 **to Date:** .11.24**No. of Weeks:** 15 |
| **WEEK** | **CLASS DAY** | **THEORY TOPICS** |
| 1ST | 1ST | Introduction to machine design |
| 2ND | Classification of Machine Design |
| 3RD | Different materials used in Design |
| 4TH | Working Stress, Ultimate Stress & Factor of Safety |
| 5TH | Stress- Strain Diagram for MS & CI |
| 2ND | 1ST | Factors affecting Machine Design |
| 2ND | Cont... |
| 3RD | Design Procedure |
| 4TH | Cont... |
| 5TH | Review Class |
| 3RD | 1ST | Joints and their classification |
| 2ND | State types of welded joints |
| 3RD | State advantages of welded joints over other joints |
| 4TH | **Monthly Test - 01** |
| 5TH | Design of welded joints for eccentric loads |
| 4TH | 1ST | Numerical on Welded Joint |
| 2ND | Cont… |
| 3RD | State types of riveted joints and types of rivets |
| 4TH | Describe failure of riveted joints |
| 5TH | Determine strength & efficiency of riveted joints |
| 5TH | 1ST | Design riveted joints for pressure vessel |
| 2ND | Numerical on Riveted Joints |
| 3RD | Cont… |
| 4TH | Cont… |
| 5TH | Cont… |
| 6TH | 1ST | Review Class |
| 2ND | State function of shafts |
| 3RD | State materials for shafts |
| 4TH | Design solid & hollow shafts to transmit a given power at given rpm based on Strength: (i) Shear stress, (ii) Combined bending tension |
| 5TH | **Monthly Test – 02**  |
| 7TH | 1ST | State standard size of shaft as per I.S. |
| 2ND | Numerical on Shaft Design |
| 3RD | Numerical on Shaft Design |
| 4TH | Numerical on Shaft Design |
| 5TH | State function of keys & material of keys |
| 8TH | 1ST | Types of keys  |
| 2ND | Describe failure of key, effect of key way |
| 3RD | Design rectangular sunk key considering its failure against shear& crushing |
| 4TH | Design rectangular sunk key considering its failure against crushing |
| 5TH | Numerical on Key Design |
| 9TH | 1ST | Cont… |
| 2ND | Design rectangular sunk key by using empirical relation forgiven diameter of shaft |
| 3RD | Numerical on Key Design |
| 4TH | **Monthly Test – 03** |
| 5TH | State specification of parallel key, gib-head key, taper key as per I.S. |
| 10TH | 1ST | Review Class |
| 2ND | Shaft Coupling |
| 3RD | Requirements of a good shaft coupling |
| 4TH | Types of Coupling |
| 5TH | Design of Sleeve or Muff-Coupling |
| 11TH | 1ST | Numerical on Muff Coupling |
| 2ND | Cont… |
| 3RD | **Monthly Test – 04** |
| 4TH | Design of Clamp or Compression Coupling |
| 5TH | Numerical on Compression Coupling |
| 12TH | 1ST | Cont… |
| 2ND | Review Class |
| 3RD | Materials used for helical spring |
| 4TH | Standard size spring wire. (SWG). |
| 5TH | Terms used in compression spring |
| 13TH | 1ST | Stress in helical spring of a circular wire |
| 2ND | Deflection of helical spring of circular wire |
| 3RD | Surge in spring |
| 4TH | Numerical on design of spring |
| 5TH | Cont… |
| 14TH | 1ST | Cont… |
| 2ND | Review Class |
| 3RD | Revision Class |
| 4TH | Revision Class |
| 5TH | Revision Class |
| 15TH | 1ST | Revision Class |
| 2ND | Revision Class |
| 3RD | Revision Class |
| 4TH | Revision Class |
| 5TH | Revision Class |