

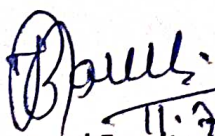
C. V. RAMAN POLYTECHNIC, BHUBANESWAR

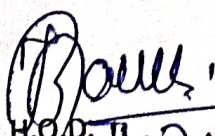
LESSON PLAN Session (2025-2026)

| | | |
|---|---|--|
| Discipline: Mechanical Engineering | Semester: 5th Semester, Winter/2025 | Name of the Faculty: Radhamohan Kabisatapathy, Asst. Prof. |
| | | Email ID: r.m.kabisatapathy@cvrp.edu.in |
| Subject: Design of Machine Elements (Th-2) | No. of Days/week: 04 | Start Date: 14.07.2025 |
| | | End Date: 15.11.2025 |
| Week | Class Day | Theory Topics |
| 1st | 1st | Introduction to Machine Design and its classification. |
| | 2nd | Different mechanical engineering materials used in design and their uses. |
| | 3rd | Mechanical engineering materials used in design and their mechanical and physical properties |
| | 4th | Define working stress, yield stress & stress strain diagram. |
| 2nd | 1st | Ultimate stress & factor of safety and stress-strain curve for M.S & C.I. |
| | 2nd | Ultimate stress & factor of safety and stress-strain curve for M.S & C.I. |
| | 3rd | Modes of Failure (By elastic deflection, general yielding & fracture) |
| | 4th | Modes of Failure (By elastic deflection, general yielding & fracture) |
| 3rd | 1st | State the factors governing the design of machine elements. |
| | 2nd | Explanation of design procedure. |
| | 3rd | Types of welded joints, |
| | 4th | Advantages of welded joints over other joints. |
| 4th | 1st | Design of welded joints for eccentric loads. |
| | 2nd | State types of riveted joints and types of rivets. |
| | 3rd | Describe failure of riveted joints. |
| | 4th | Determine strength & efficiency of riveted joints. |

| | | |
|------|-----|--|
| 5th | 1st | Design riveted joints for pressure vessel. |
| | 2nd | Numerical on Welded Joint. and Riveted Joints. |
| | 3rd | Numerical on Riveted Joints |
| | 4th | Function of shafts, State materials for shafts |
| 6th | 1st | Design of solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, |
| | 2nd | Design of solid & hollow shafts to transmit a given power (ii) Combined bending tension; |
| | 3rd | Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity |
| | 4th | Revision and Doubt clearing |
| 7th | 1st | Standard size of shaft as per I.S. |
| | 2nd | Function of keys, types of keys & material of keys |
| | 3rd | Failure of key, effect of key way |
| | 4th | Design of rectangular sunk key considering its failure against shear |
| 8th | 1st | Design of rectangular sunk key considering its failure against crushing |
| | 2nd | Design of rectangular sunk key by using empirical relation for given diameter of shaft |
| | 3rd | Revision and Doubt clearing |
| | 4th | Specification of parallel, gib-head key as per I.S. |
| 9th | 1st | Specification of parallel taper key as per I.S. |
| | 2nd | Revision and Doubt clearing |
| | 3rd | Numerical on Design of Shaft and keys. |
| | 4th | Numerical on Design of Shaft and keys. |
| 10th | 1st | Quiz Test |
| | 2nd | Design of Shaft Coupling |
| | 3rd | Design of Shaft Coupling |
| | 4th | Requirements of a good shaft coupling |

| | | |
|------|-----|--|
| 11th | 1st | Revision and Doubt clearing |
| | 2nd | Types of Coupling |
| | 3rd | Explanation of coupling |
| | 4th | Design of Sleeve or Muff-Coupling |
| 12th | 1st | Design of Sleeve or Muff-Coupling |
| | 2nd | Design of Clamp or Compression Coupling |
| | 3rd | Design of Clamp or Compression Coupling |
| | 4th | Simple numerical on muff coupling |
| 13th | 1st | Simple numerical on muff coupling |
| | 2nd | Simple numerical on clamp coupling |
| | 3rd | Materials used for helical spring. |
| | 4th | Materials used for helical spring. |
| 14th | 1st | Standard size spring wire. (SWG) |
| | 2nd | Terms used in compression spring |
| | 3rd | Stress in helical spring of a circular wire |
| | 4th | Numerical on spring |
| 15th | 1st | Deflection of helical spring of circular wire |
| | 2nd | Surge in spring |
| | 3rd | Numerical on design of closed coil helical compression spring. |
| | 4th | Revision and Doubt clearing |


11.7.25
 Concerned Faculty


H.O.D. 11.7.25