# LESSON PLAN FOR WINTER SESSION (2023-24)

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| PROGRAMME : CIVIL ENGINEERING | NAME OF THE FACULTY: MR. ARABINDA SAHU |
| COURSE NAME : STRUCTURAL DESIGN-II | SESSION : 2023-24 |
| COURSE CODE : TH.2 | DATE : 01/08/23 To 30/11/23 |
| SEMESTER : 5th | |
| PERIODS/WEEK: 4 | |
| TOTAL PERIODS:60 | |

| WEEK | PERIODS | UNITS | TOPICS |
|---|---|---|---|
| Aug. 1st Week | 1 | 1 | **1. Introduction:** 1.1 Common steel structures, Advantages & disadvantages of steel structures. |
| | 2 | 1 | 1.2 Types of steel, properties of structural steel. |
| | 3 | 1 | 1.3 Rolled steel sections, special considerations in steel design. |
| | 4 | 2 | 1.4 Loads and load combinations. |
| Aug. 2nd Week | 1 | 2 | 1.5 Structural analysis and design philosophy. |
| | 2 | 2 | 1.6 Brief review of Principles of Limit State design. |
| | 3 | 2 | **2. Structural Steel Fasteners and Connections.** 2.1 Bolted Connections |
| | 4 | 2 | 2.1.1 Classification of bolts, advantages and disadvantages of bolted connections. |
| Aug. 3rd Week | 1 | 2 | 2.1.2 Different terminology, spacing and edge distance of bolt holes. |
| | 2 | 2 | 2.1.3 Types of bolted connections. |
| | 3 | 2 | 2.1.4 Types of action of fasteners, assumptions and principles of design. |
| | 4 | 2 | 2.1.5 Strength of plates in a joint, strength of bearing type bolts (shear capacity& bearing capacity), reduction factors, and shear capacity of HSFG bolts. |
| Aug. 4th Week | 1 | | **Monthly Test-1** |
| | 2 | 2 | 2.1.6 Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces) |
| | 3 | 2 | 2.1.7 Efficiency of a joint. |
| | 4 | 2 | 2.2 Welded Connections: |
| Sept. 1st Week | 1 | 2 | 2.2.1 Advantages and Disadvantages of welded connection |
| | 2 | 2 | 2.2.2 Types of welded joints and specifications for welding |
| | 3 | 2 | 2.2.3 Design stresses in welds. |
| | 4 | 2 | 2.2.4 Strength of welded joints. |
| Sept. 2nd Week | 1 | 3 | **3. Design of Steel tension Members** 3.1 Common shapes of tension members. |
| | 2 | 3 | Common shapes of tension members. |
| | 3 | 3 | 3.2 Maximum values of effective slenderness ratio. |
| | 4 | 3 | 3.2 Maximum values of effective slenderness ratio. |
| Sept. 3rd Week | 1 | 3 | 3.4 Analysis and Design of tension members |
| | 2 | 3 | 3.4 Analysis and Design of tension members |
| | 3 | 3 | 3.4 Analysis and Design of tension members |
| | 4 | 4 | **4. Design of Steel Compression members.** 4.1 Common shapes of compression members |
| Sept. 4th Week | 1 | 4 | Common shapes of compression members. |
| | 2 | 4 | 4.2 Buckling class of cross sections, slenderness ratio |
| | 3 | 4 | 4.2 Buckling class of cross sections, slenderness ratio |
| | 4 | | **Monthly Test-2** |
| Oct. 1st Week | 1 | 4 | 4.3 Design compressive stress and strength of compression members. |
| | 2 | 4 | 4.4 Analysis and Design of compression members (axial load only) |
| | 3 | 4 | 4.4 Analysis and Design of compression members (axial load only) |
| | 4 | 4 | 4.4 Analysis and Design of compression members (axial load only) |
| Oct. 2nd Week | 1 | **Internal Assessment Exam** | |
| | 2 | 5 | **5. Design of Steel beams:** 5.1 Common cross sections and their classification |
| | 3 | 5 | Common cross sections and their classification |
| | 4 | 5 | 5.2 Deflection limits, web buckling and web crippling |
| | 5 | 5 | 5.2 Deflection limits, web buckling and web crippling |
| Oct. 3rd Week | 1 | 5 | 5.3 Design of laterally supported beams against bending and shear |
| | 2 | 5 | 5.3 Design of laterally supported beams against bending and shear |
| | 3 | 5 | Problem solving |
| | 4 | 5 | Problem solving |
| | 5 | 5 | Problem solving |

| WEEK | PERIODS | UNITS | TOPICS |
|---|---|---|---|
| Oct. 4th Week | | | **Puja Holidays** |
| Nov. 1st Week | 1 | 6 | **6. Design of Tubular Steel Structures:** 6.1 Round Tubular Sections, Permissible Stresses |
| | 2 | | **Monthly Test-3** |
| | 3 | 6 | 6.2 Tubular Compression & Tension Members |
| | 4 | 6 | 6.2 Tubular Compression & Tension Members |
| | 5 | 6 | 6.3 Joints in Tubular trusses |
| Nov. 2nd Week | 1 | 6 | 6.3 Joints in Tubular trusses |
| | 2 | 6 | Problem solving |
| | 3 | 6 | Problem solving |
| | 4 | 7 | **7. Design of Masonry Structures:** 7.1 Design considerations for Masonry walls & Columns |
| | 5 | 7 | Design considerations for Masonry walls & Columns |
| Nov. 3rd Week | 1 | 7 | Problem solving |
| | 2 | 7 | 7.2 Load Bearing & Non-Load Bearing walls. |
| | 3 | 7 | 7.2 Load Bearing & Non-Load Bearing walls. |
| | 4 | 7 | 7.3 Permissible stresses, Slenderness Ratio |
| | 5 | 7 | Problem solving |
| Nov. 4th Week | 1 | 7 | 7.4 Effective Length, Height & Thickness. |
| | 2 | 7 | Problem solving |
| | 3 | | **Monthly Test-4** |
| | 4 | | **Doubt Clearing Class & Previous year question Paper discussion.** |
| | 5 | | **Doubt Clearing Class & Previous year question Paper discussion.** |

Arabinda Sahu
Concern faculty

31.7.23
HOD
Civil engineering

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Principal
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31/7/23