

CE/BOS/CE 306/0513

**K L UNIVERSITY**  
**DESIGN OF STEEL STRUCTURES (11-CE306)**

**Pre – requisite: 11-ES201, 11-CE204, 11-CE301**

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**SYLLABUS:**

**Materials and Structural Fasteners:** Rolled steel sections, Common steel structures, Advantages and Disadvantages, Types of steel, properties of structural steel, Special considerations in steel design, Loads and Load combinations, Principles of Limit state design, Types of bolted and welded joints, Advantages and disadvantages of bolted and welded joints, Design of bolts, Design of welds. **Tension Members:** Types of sections, Net sectional area, Permissible stress, Design of axially loaded tension member, Design strength of a Tension member, Design procedure-Tension member splice-Lug angles. **Compression Members:** Buckling class of Cross section-Slenderness ratio-Design compressive Stress and Strength-Shapes of compression members-Design of compression members, Design of lacing and battening type columns – Design of column bases – Gusseted base. **Beams:** Design of laterally supported beam, Design of Laterally unsupported beam, Bending strength of laterally supported beam, Shear strength of laterally supported beam, Web buckling ,Web crippling and unsupported beams – Effective length for lateral torsional buckling, Built up beams – design of purlin -design of grillage beams. **Design of Bolted and Welded Beam Connection:** Types- framed connection- unstiffened seated-stiffened seated-small moment resistant-large moment resistant connections – For both Bolted and welded. **Roof Trusses:** Roof trusses – Roof and side coverings – Design loads, design of purlin, Sheeting-Loads on trusses-Analysis of trusses and elements of truss-Grouping of members- end bearing

**TEXT BOOKS:**

1. Steel Structures (Design and Practice) by N Subramanian. Oxford University Press, New Delhi, 2010.
2. Indian standard code of practice for General Construction in Steel (IS: 800-2007): Bureau of Indian standards New Delhi

**REFERENCE BOOKS:**

1. Design of steel structures by limit state method by S.S. Bhavikatti. I.K International Publishing House Pvt. Ltd .New Delhi-110016
2. Limit state design of Steel Structures by S.K Duggal, Tata McGraw Hill publishing company Limited, New Delhi- 110008.
3. Limit State Design in Structural Steel by M R Shiyekar, PHI learning private limited, New Delhi, 2011