Course syllabus

Department of Civil Engineering, Indian Institute of Technology Madras

CE3050 - Basic Structural Steel Design

Credit Distribution: C:11 L:3 T:1 P:0 E:1 O:6 TH:0

Course Type: Theory

Description: To gain basic understanding of structural design and detailing of steel structures.

Course Content: 1. Introduction to structural design and detailing, properties of structural steel, available materials and sections (steel tables).2. Limit states design concepts, loads on structures, bearing and friction type of bolts, welding, concentric and eccentric connections.3. Tension members, compression members, laced and battened columns, splices and column bases.4. Fundamentals of plastic analysis and design. 5. Design of laterally supported and unsupported beams, beam-to-column connections, plate girders.6. Design of beam-columns.

Text Books

- NPTEL web courses on Design of Steel Structures - I and II, www.nptel.ac.in/courses/IIT-Madras.
- Design of Steel Structures, Sai Ram, K.S., Pearson Education in South Asia, 2010.
- Limit State Design of Steel Structures, Duggal S. K., Tata McGraw Hill Education (India) Private Limited, 2014.
- Limit State Design of Steel Structures, Chandra R. and Gehlot V., Scientific Publishers, 2009.
- Fundamentals of Structural Steel Design, Gambhir, M.L., Tata McGraw-Hill Education, 2013.
- Design of Steel Structures, Bhavikatti S. S., IK International Publishing House Pvt. Ltd., 2014.

Reference Books

- IS 800 General Construction in Steel - Code of Practice, Bureau of Indian Standards.
- SP 6 Handbook for Structural Engineers, (1) Structural Steel Sections, (6) Plastic Analysis, Bureau of Indian Standards.
- Design of Steel Structures, Segui, W. T., Cengage Learning, New Delhi, 2007.
- Design of Steel Structures, Subramanian N., Oxford University Press, India, 2008.
- Teaching Resources for Structural Steel Design, Volume 1, Institute for Steel Development and Growth.

Prerequisite: NIL