



CC027

Advanced Steel Work Design and Inspection

Course Introduction:

Steel is perhaps the most used construction material in the USA for high-rise towers, industrial buildings, bridges and other structures. It competes with reinforced concrete in the US and rest of the world because of its many favorable characteristics including high strength, high stiffness, ductility and toughness, speed of erection, competitive cost, etc. Its use in the Middle East region has been mostly confined to industrial plants and warehouses. The rise in labor cost and the need for higher buildings will inevitably improve the competitive edge of steel in many instances in the near future.

Design of steel structures has widely been based on the Allowable Stress Design whether the AISC standards or the British BS449 standards are used. This situation has changed since the mid-eighties, but old habits expire hard. Many designers and fabricators still use the old allowable stress techniques. The more recent LRFD code of the AISC and the limit state BS5950 offer more rational and economical procedures for the design of steel structures.

This course shall make reference to various codes old and new but is primarily based on the AISC-LRFD procedures, which are the recognized state of the art in design.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- Discuss the advanced steel work design and inspection
- Identify and use the case of steel and steel grades in construction
- Apply the codes of practice in design, the evolution of allowable stress to LRFD, limit state design and the design of tension members
- Illustrate the designs of compression members, beams and beam-columns
- Employ the bolted connections design, welded connections design and the new connection type of earthquake resistant design
- Manage to select the structural system for types of building and operate the precise procedure using analysis and design of steel structures

Who Should Attend?

This course is intended to any civil engineer, design structural engineers, construction engineers, supervision engineers, planners and steel fabricator.

Course Outline:

Day 1:

- Introduction
- The Case for Steel Use in Construction
- Available Steel Grades and Sections
- Codes of Practice for Design, Evolution from Allowable Stress to LRFD and Limit State Design
- Design of Tension Members

Day 2:

- Design of Compression Members.
- Design of Beams
- Design of Beam-Columns

Day 3:

- Bolted Connections Design
- Welded Connections Design
- Earthquake Resistant Design and New Connection Type
- Fabrication and Erection of Steel Instructor

Day 4:

- Selection of Structural Systems for One Story and Multistory Buildings
- Rigidly Connected Frames
- Plane Trusses
- Space Trusses
- Bracing Strategies and Design
- Analysis of Steel Structures using Computer Packages
- Design of Steel Structures using Computer Packages
- Pre-engineered Sections Design

Day 5:

- Case study
- Design of Composite Beams
- Design of Built-up Beams
- Preparation of Fabrication and Erection Shop-Drawings
- Specifying Structural Steel

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Fees:

This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session

