

Structural Steel Design and Construction by European code Training program

Introduction

Steel is the most used construction material in the USA and Europe for industrial buildings, high-rise towers, bridges and other structures. It competes with reinforced concrete in 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, offshore structures and warehouses. The lower construction time and it can be used as a temporary structure make it competitive than the concrete structure.

All the countries who is working by BS will be switch to the EC within the next years.

Design of steel structures has widely been based on the Allowable Stress Design based on the EC. Many designers and fabricators still use the old allowable stress techniques.

The petroleum industry is interesting in modify the structure in case of offshore structures topsides or in the on shore facilities to carry more load or add more machine so the management of change must be considered and important.

Objectives

- This short course is intended to overview modern procedures for the design and erection of structural steel buildings especially for oil and gas industry.
- The attendees will be familiar with the European code (EC) and will know the comparison between it and the BS.
- This course will increase the knowledge and assist in using new tools for designing and construction the steel structure for new project or modify the existing one.
- The interaction between concrete and steel will be defined. The anchor bolts, machine skid design, construction and installation will be discussed theoretically and practically.
- For those engineers with limited practical experience the course will illustration of real design and construction issues that may assist the designer to conceive of a structural steel system that is safe, economical and constructible.
- The rule of thumb to check the steel structure or to modify the deck in case of offshore and onshore structures.
- The course will be started from the basics to ensure the full participation of all attendees.

Who Should Attend?

Civil engineers who are interesting in learning about steel design may attend the course.

Design structural engineers, Supervision engineer, Planners, Steel fabricator, Construction engineers

Methodology

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

Certificate

BTS attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration

Contents

Day (1)

- Introduction
- The case for steel use in construction.
- Structure system
- The comparison between different structure system
- Define the appraise, select and define step in steel structure projects
- Available steel grades and sections.
- EC Codes of practice for design, evolution from allowable stress to LRFD and limit state design.
- Preparing SOR and BOD
- Codes and standards Philosophy

Day (2):

- Selection of structural systems
- Rigidly connected frames
- Plane trusses
- Space trusses
- Design of tension members based on EC
- Design of compression members based on EC.
- Design of Beams based on EC
- Design of Beam-Columns based on EC

Day (3):

- Different types of temporary support
- Bolted connections design based on EC precaution
- Welded connections design
- Fabrication and erection of steel connection
- New methods for connecting steel to Concrete.
- Anchor bolt design based on EC

Day (4)

- Types of different soil
- Choose suitable foundation based on soil type
- The required simple test to identify the soil
- Foundation under reciprocating and centrifugal machine
- Dynamic analysis calculation for steel skid
- Using CFRP in Steel structure
- Fabrication and erection of CFRP

Day (5):

- Design of composite beams based on EC.
- Design of composite columns
- Design of composite slabs
- Preparation of fabrication and erection shop-drawings
- Specifying structural steel