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Course Name

Advanced Structural Steel Design in Oil and Gas

Sector Name

Civil Engineering

Document Type

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Advanced Structural Steel Design in Oil and Gas

Course Introduction

Structural Steel Design in Oil and Gas

Steel is the most used construction material in the USA 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 use as a temporary structure make it competitive than the concrete structure.

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

The petroleum industry is interested in modifying the structure in case of offshore structures' topsides or in the onshore facilities to carry more load or add more machines, so the management of change must be considered and important.

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Target Audience

- ✓ Civil Engineer
- ✓ Commissioning Engineer
- ✓ Construction Engineer
- ✓ Contract Engineer
- ✓ Drilling Engineer
- ✓ Fire Protection Engineer
- ✓ Piping Engineer

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Learning Objectives

- ✓ Intended to overview of modern procedures for the design and erection of structural steel buildings, especially for the oil and gas industry.
- ✓ Increase the knowledge and assist in using new tools for designing and constructing the steel structure for a new project or modifying 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.
- ✓ It will illustrate real design and construction issues that may assist the designer in conceiving of a structural steel system that is safe, economical, and constructible.
- ✓ The rule of thumb is to check the steel structure or to modify the deck in case of offshore and onshore structures.

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Course Outline

✓ DAY 01

Introduction

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

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Course Outline

✓ Day 02

Selection of structural systems

- ✓ Rigidly connected frames
- ✓ Plane trusses
- ✓ Space trusses
- ✓ Design of tension members
- ✓ Design of compression members.
- ✓ Design of Beams
- ✓ Design of Beam-Columns
- ✓ Apply Staad Pro in a real example

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Course Outline

✓ Day 03

Different types of temporary support

- ✓ Bolted connections design, Welded connections design
- ✓ Fabrication and erection of the steel connection
- ✓ New methods for connecting steel to Concrete.
- ✓ Anchor bolt design
- ✓ Anchor bolt design using Hilti
- ✓ Use the RISA base and Excel sheet for calculation

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Course Outline

✓ Day 04

Types of different soil

- ✓ Dynamic analysis calculation for the steel skid
- ✓ Using CFRP in a Steel structure
- ✓ Fabrication and erection of CFRP
- ✓ Example of a steel structure by Staad Pro or SAP 2000

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Course Outline

✓ Day 05

Design of composite beams.

- ✓ Design of composite columns
- ✓ Design of composite slabs
- ✓ Preparation of fabrication and erection shop drawings
- ✓ Specifying structural steel

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Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 8, 2026	June 12, 2026	5 days	4250.00 $	UAE , Dubai
Sept. 14, 2026	Sept. 18, 2026	5 days	5950.00 $	Switzerland , Zurich
March 14, 2027	March 18, 2027	5 days	4250.00 $	KSA , Riyadh
Dec. 28, 2026	Jan. 1, 2027	5 days	4250.00 $	UAE , Abu Dhabi

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