



**SCANDINAVIAN ACADEMY**  
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# Course: Concrete Structural Design for Industrial

Code	City	hotel	Start	End	price	Hours
137	Manama (Bahrain)	Hotel Meeting Room	2024-09-08	2024-09-12	2950 €	25

## The Course

Reinforced concrete structures are widely used in industrial sector special in oil and gas field for onshore. Therefore, the basis of design for concrete structure for strength, serviceability and robustness will be discussed in scope of codes concept. So ACI, BS, UBC and ASCE will be discussed in scope of practical wise to use the suitable design method to serve our business safety and operability. The objective of this course is to train engineers to be familiar with using American Concrete Institute Standard (ACI) and British standard (BS). The concept and basics of codes and standard will be introduced concerning the probability of failure specifically in ACI and BS.

The course will cover the basis of design for retaining wall, liquid tanks, foundation under machines and foundation under steel tanks, separator, KOD. Moreover, the key steps in design and review design will be illustrated.

## The Goals

- This short course is intended to overview modern and effective procedures for the design for reinforced concrete structures in oil and gas industry.
- The course will be containing extensive workshop as a hand calculation for reinforced concrete elements which use in oil and gas industry as pipe rack and ring beam under steel tanks in plant process.
- This course will increase the knowledge and assist in using new tools for designing and reviewing the design for new project or modify the existing one.
- Moreover, the design of foundation under all types of vibrating equipment will



cover in this course to enable the attendees design or review design the foundation.

- For those engineers with limited practical experience the course will illustration of real design issues that may assist the designer to provide concrete structure that is safe, economical and constructible.
- The rule of thumb to check the concrete design with associated check list will deliver.
- The course will be started from the basics to ensure the full participation of all attendees.

## **The Core Competencies**

- In all the universities and civil engineering faculty presents the civil and structure design based on the main principal and usually the application on the normal housing.
- In the industrial projects the application is different so this course will fit the gap between the normal knowledge and the professionalism for industrial in general and specific for oil and gas projects.

## **The Programme Content**

### **Day One**

- Introduction
- The fundamental of concrete technology
- Basic concept of concrete design
- Main features for ACI and BS for concrete design
- Effect of different loads on the building
- Earthquake , wind load effect
- Loads affect pipe rack, static equipment and tanks foundations
- Principal, limitations for different codes in concrete (ACI, BS codes)



- Codes and standards Philosophy

## **Day Two**

- Principal of concrete design and precaution
- Different structure systems
- Different slab types
- The way to use the suitable structure system
- Design of slab, beam and columns
- Pipeline support design
- Checklist to review the design

## **Day Three**

- Soil investigation
- Shallow foundation design philosophy
- Pile foundation design philosophy
- Foundation under machines design
- Checklist to review foundation under rotating equipment
- Precaution in design foundation under vibrating machines

## **Day Four**

- Pipe rack configuration
- Pipe rack design
- Retaining walls design principals
- Load and forced in retaining walls
- Retaining walls design checks

## **Day Five**

- Design for reinforced concrete liquid tanks
- Structure system for concrete tanks



- Circular and rectangular tank
- Principal Design for ring beam for steel tanks
- Integrity and maintenance management system principal



**The Scandinavian Academy for Training and Development employs modern methods in training and skills development, enhancing the efficiency of human resource development. We follow these practices:**

- **Theoretical Lectures:**

- We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.

- **Scientific Assessment:**

- We evaluate trainees skills before and after the course to ensure their progress.

- **Brainstorming and Interaction:**

- We encourage active participation through brainstorming sessions and applying concepts through role play.

- **Practical Cases:**

- We provide practical cases that align with the scientific content and the participants specific needs.

- **Examinations:**

- Tests are conducted at the end of the program to assess knowledge retention.

- **Educational Materials:**

- We provide both printed and digital scientific and practical materials to participants.

- **Attendance and Final Result Reports:**

- We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.

- **Professionals and Experts:**

- The programs scientific content is prepared by the best professors and trainers in various fields.

- **Professional Completion Certificate:**

- Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.

- **Program Timings:**

- Training programs are held from 10:00 AM to 2:00 PM and include buffet sessions for light meals during lectures.