

Design and Strengthening of Reinforced Concrete

التصميم الإنشائي وتحسين مقاومة المباني

08 – 12 September 2019, Muscat/Oman

Course Objectives:

Design of reinforced concrete structures

Who Should Attend?

This course is designed to meet the needs primarily of structural engineers, material specialists, quality control and quality assurance experts, construction and supervision

Engineers involved in design, supervision, construction or planning will find many direct links with their practice and requirements and can put the information provided to use immediately.

Course Curriculum:

Day One

First test

1- Concrete

- Design mix
- Fresh properties
- Hardened properties

2- Reinforcing steel

- Properties & types
- Tests

3- Reinforced concrete properties

- Strain
- Stress
- Durability

4-Codes and design basis

- ACI code
- euro code
- Arabic code
- Ultimate strength design methods
- working stress design
- Solved examples, applications and case studies

Day Two

1- Loads

- Live loads
- Dead loads
- Wind loads
- Plast loads
- Earthquake loads

2- Structural analysis and design for slabs

- Solid slabs
 - ✓ Design and details of reinforcements
- Hollow block slabs
 - ✓ Design and details of reinforcements
- Flat slabs
 - ✓ Design and details of reinforcements

3- Structural analysis and design for beams

- Simple beams

- ✓ Design and details of reinforcements
- Continuous beams
 - ✓ Design and details of reinforcements
- Cantilever and short Cantilever
 - ✓ Design and details of reinforcements
- Solved examples, applications and case studies

Day three

1- Structural design and analysis for RC halls

- Reinforced concrete frames
 - ✓ Design and details of reinforcements
- Reinforced concrete columns
 - ✓ Design and details of reinforcements
- Reinforced concrete stairs
 - ✓ Design and details of reinforcements

Day four

1- Site visit to new and different construction RC projects

2- Site visit to concrete patch plants

- Design of normal concrete mix
- Design of HSCM
- Design of SCC

3- Site visit to testing lab.

- Testing for fresh concrete properties
- Testing for Hardened properties

4- Solved examples, applications and case studies

Day five

1- Structural analysis and design for RC footings

- Isolated footings
- Combined footings
- Strip footings
- raft footings
- Deep footing

2- Retating walls

3- Water structures

4- Final test exam

Course Fee :

US\$ 3,800