



## ACI Code Requirements and Specifications For Concrete Design, Construction and Repair Training

### Description

#### Course Description

The concrete design and construction precaution in ACI will be discussed deeply to assist the trainer be familiar with this code and know about its strong and weak point. The acceptance and evaluation of concrete is the main aim for engineers working in concrete construction so it will be clarified in this course.

The design of form work and steel detailing will be introduced in this course in scope of ACI requirements. To protect steel bars from corrosion the ACI provides many specifications and recommendation to avoid steel corrosion so the course will highlight this issue and addition to that the construction of concrete in hot climate.

ACI recently introduced its standards for evaluating the existing structure according to certain procedure so in this course will present it and provide the code procedure for repair. Moreover, the ACI defines the structure system in case of earthquake load so this course will introduce it with specification requirement to design the structure, which are affected by earthquake.

#### Course Objective

The objective of this seminar is to train people who are interested in using American Concrete Institute Standard ACI to be familiar with using this standard. The concept and basics of codes and standard will be introduced concerning the probability of failure specifically in ACI. The recent ACI code will be presented for design and construction for concrete structure.

#### Course Outline

##### Day One

- Concept of ACI design codes
- Concrete properties

- Load affecting structure based on ACI
- Strength requirement
- Probability of failure based on ACI
- Serviceability requirement
- Concrete mix design
- Specifications requirement
- Standards and codes

## Day Two

- Standards for tests and materials
- Main element design as beam, slab and column
- Material specifications
- Concrete quality for mixing
- Concrete curing
- Hot concrete requirement
- Evaluation and acceptance of concrete
- Corrosion protection of concrete
- Standard of coated steel bars

## Day Three

- Concrete construction requirements
- Design of Formwork
- Detailed of reinforcement
- Surface condition of reinforcement
- Design of different structure element
- Earthquake precaution
- Design system for earthquake

## Day Four

- Strength evaluation of existing structure
- Structure evaluation
- Visual inspection technique
- Non destructive testing
- Pullout test
- Ultrasonic test
- Core test

## Day Five

- Define repair procedure based on ACI
- Prepare cracks to repair
- Using polymers and additives
- Using epoxy for repair
- Design temporary support