איגוד המהנדסים
לבנייה ולתשתיות בישראל

Course topics

Ground Motions from Past Earthquakes

Peak Ground Acceleration, Velocity, and Displacement – PGA, PGV and PGD

Concept of Response Spectrum

Smooth Response Spectrum from PGA, PGV and PGD

Building Code Response Spectra

Acceleration–Deformation Response Spectrum

Ground Motions for Future Earthquakes

Probabilistic Seismic Hazard Analysis (PSHA)

Site-Specific Response Spectra of Horizontal and Vertical Motions

Building Code Response Spectra and Expected Performance

Ground Motion Histories for 2D and 3D Dynamic Analyses

Response Spectra for Various Values of Damping

Structure Types for Different Sites

Seismic Response of One-Story Buildings

Linear-Static Analysis

Linear-Dynamic Analysis

Nonlinear-Static Analysis

- Pushover Curve
- Capacity Curve
- Damping Curve
- Responses at Equilibrium

Nonlinear-Dynamic Analysis

Design of Connections

Uncertainty in Strength of Structural Elements

Pros and Cons of Different Types of Analysis

Knee-Braced Frame

Eccentric Braced Frame

Tension-Only Braced Frame

Effect of Torsional Eccentricity

Seismic Response of Multistory Buildings

Multi-Story Moment Frame

Linear-Static Analysis

- Modal Properties
- Modal Responses

Linear-Dynamic Analysis

Nonlinear-Static Analysis

- Pushover Curve
- Capacity Curve
- Damping Curve

Responses at Equilibrium

Nonlinear-Dynamic Analysis

Effect of Height on Building Vulnerability

Effect of Soft-Story on Building Vulnerability

Effect of Braces

Sliding of Unanchored Equipment During Earthquakes

Sliding or Rocking

Nonlinear-Dynamic Analysis

- Equation of Motion
- Response to Horizontal Shaking
- Effects of Vertical Ground Motion

Nonlinear-Static Analysis

- Demand Curve
- Capacity Curve
- Sliding Response

Static and Dynamic Friction

- Nonlinear Model
- Pushover and Damping Curves
- Pushover Analysis
- Effect of Increasing Anchorage

Seismic Response of Gantry Cranes

- Elastic Analysis
- Inelastic Analysis
- Plastic Rotations
- Design of Connections