SEISMIC ANALYSIS USING ETABS

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Seismic Analysis Using ETABS In Accordance With New Zealand Standards

ETABS is an integrated software with structural and earthquake engineering capabilities, which makes it unique for seismic analysis and design of various structures. Having a robust understanding of how ETABS works, especially in relation with New Zealand standards requirements, is vital for consulting engineers undertaking seismic design, assessment, strengthening design and peer review.

We offer workshops training in seismic design, using ETABS as the main tool for seismic analysis. Our training will help you to get the most out of your software. The two-day training workshops are presented in three different levels.

Level one :

This level will cover :

- An introduction to why and when modelling is required
- Introducing ETABS and getting familiar with the interface
- Application of first principles in modelling with ETABS 2D examples

Step by step guidance using three examples of common structural systems including steel and concrete, the attendants will learn the followings;

- 3D modelling of structures introducing material properties, geometry, connections, boundary conditions, load cases and load combinations.
- Different types of seismic analysis and their limitations considering requirements of NZS 1170
- Application of equivalent static and response spectrum analysis method for nominally ductile structures in accordance with NZS
- Evaluation of global performance of structures, checking code requirements and obtaining design actions consistent with NZS
- Modelling typical shallow foundations as linear elements and performing additional analysis required for liquefaction according to MBIE guideline

Learning outcome:

The attendant is expected to be able to model and analyse regular building structures with normal structural systems and obtain design actions and check the requirements of the relevant standard NZS.

Level two :

This level is designed for engineers who already are familiar with ETABS and seismic design principles. It helps consulting engineers to improve their skills to use ETABS in more complex situations.

- Using ETABS for seismic analysis of multi-story building structures considering NZS requirements
- Modelling and analysis of irregular and mid-rise buildings with shear walls
- Considering P-delta effects in the analysis
- Analysis of rocking systems
- Seismic analysis of buildings with shallow foundations considering soil-structure interaction
- Seismic analysis of buildings with deep pile foundations considering soil-structure interaction

Learning outcome:

The attendants is expected to be able to undertake seismic design of multi-story and irregular buildings. Incorporate geotechnical engineering data into the model and observe the effect of soil-structure interaction. This will help the design engineer to obtain more realistic structural performance and provide more accurate feedback to geotechnical engineers. This leads to more efficient strengthening or new design.

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Level three :

This level of training is designed for engineers that are already professional users of ETABS and are well familiar with seismic design and principles of earthquake engineering.

- Nonlinear static analysis (Pushover analysis) according to NZSEE guideline
- Linear dynamic analysis for structures with high importance level
- Nonlinear time history analysis according to NZS 1170.5
- Interpretation of the results and checking the NZSEE requirements

Learning outcome:

The attendant will learn how to perform advanced analysis for seismic assessment of existing buildings, and gain detailed insight to structural performance. This will help consulting engineers to undertake efficient and cost effective strengthening design.

Lecturer Profile :

Dr. Abbas Mirfattah received his PhD in Earthquake Engineering from EUCENTRE/ROSE School, Italy. He has been involved in a multi-national European project REAKT that aims to assess seismic risk in critical European transportation infrastructure. Seismic analysis and computer modelling has been the core of his research work. Abbas also has more than 10 years of work experience as consulting structural engineer. He has been using CSI software specially ETABS as the main tool for seismic design. Abbas has been residing in New Zealand for the past three years and is very passionate about educating engineers in seismic design and helping them getting the most out of their software.

If you are interested please fill out quick contact form on contact page on our website www.enlink.co.nz or alternatively email us at office@enlink.co.nz leaving your name, contact and the level you are interested in, we will then send you the registration form .

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