

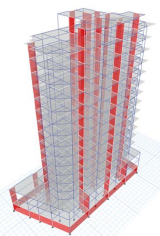


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Run Cell | Run Above | Debug Cell
25 ### OPEN ETABS
26 if "ret_program_started" in lo
27     pass
28 else:
29     helper = comtypes.client.C
30     helper = helper.QueryInter
31     # create ETABS object
32     myETABSObject = helper.Cre
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35
36 ETABS  
37

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EARTHQUAKE RESISTANT DESIGN OF RC STRUCTURES USING ETABS-API-OPENSEESPY

Duration:

3-4 June 2023 (2 days) / 9:30 – 17:30

Program:

Day 1 : 9:30 – 17:30

Time	Subject
09:30	Introduction <i>Agenda, Aseismic and Seismic Design, Design Guidelines, Evaluation of forced-based and performance-based design concept, an extension to Energy-based design</i>
10:30	Forced-Based Seismic Design (System) <i>Seismic demand, load cases, irregularities, loadin (ESL, Mode-superposition Mode-summation) and deformation checks (interstory drift, seconde order effects), load reduction check</i>
11:30	Forced-Based Seismic Design (Member) <i>Rebar detailing (beam, column, shear wall), joint shear check, strong column & weak beam check</i>
12:30	Lunch Break
13:30	Modeling for Performance Based Analysis <i>Material and geometric nonlinear modeling, damage limits, Nonlinear Static gravity analysis</i>
14:30	Performance Based Assessment and Design <i>Nonlinear Static lateral & Nonlinear Time History Analyses, estimation of seismic demand, comparison with damage limits, determination of seismic performance</i>
15:30	Python ETABS API <i>Python 101, ETABS API, best practices of using ETABS API</i>
16:30	OpenSeesPy <i>Introduction to OpenSees, modeling of cantilever column and 2D frame, nonlinear modeling of beam-column elements, nonlinear static gravity and lateral loading, comparison with ETABS modeling.</i>

Time	Subject
Overnight	<i>Self-study: understanding the analysis and design of shared RC frame ETABS model file developed in 121M713</i>

Day 2 : 9:30 – 17:30

Time	Subject
9:30	Examination of the overnight model <i>Questions & Answers on overnight model</i>
10:30	Hands-on Analysis and Design Example of a Multi-Story RC Building <i>Force-based modeling, analysis and design of 3D building system using ETABS</i>
11:30	Hands-on Analysis and Design Example of a Multi-Story RC Building <i>Nonlinear modeling of structural elements (beams, columns, shear wall) using ETABS, damage limits.</i>
12:30	Lunch Break

13:30	Performance Based Assessment & Design (Evaluation) <i>Definition of NSP & NLTH analyses, process of nonlinear analysis results, quantification of member damage, determination of system performance</i>
14:30	Python coding of ETABS API <i>Explanation of ETABS API, best practices of using API commands</i>
15:30	Modeling and Analysis of RC Structures using ETABS-API-Python <i>Modeling RC Structures (material, elements, boundary conditions), loading, obtaining analysis results</i>
16:30	Hands-on Analysis Example of a Multi-Story RC Building <i>Modeling and analysis of 2D RC Frame structures using OpenSeesPy</i>

Place and Date:

İ.T.Ü. Civil Engineering Faculty, Ayazağa Kampüsü, İstanbul

3-4 / June / 2023

Instructors:

Assoc.Prof. Hasan Özkaynak, Assoc.Prof. Ali Bozer, Dr. Ahmet Anıl Dindar, Dr. Ahmet Güllü, Dr. Ziya Müderrisoğlu

Contributors:

Ph.D. Candidate Furkan Çalım (İTÜ), Ph.D. Candidate Serkan Hasanoğlu (Univ. of Pavia), MSc student Bilal Güngör (GTU)

Fee:

Full registration: € 100

Student registration: € 50

Notes:






Target Group:

Practicing engineers, graduate students, or young researchers interested in the seismic design of reinforced concrete structures.

Requirements:

Participants are expected to have ETABS and Anaconda running in their computers for the second day activities.

Lecturers

	ENG
<p>Ahmet Anıl Dindar</p> 	<p>Received BSc in Civil Engineering at Yıldız Technical Univ. (1999), MSc in Structural Engineering at Istanbul Technical Univ. (2002) and PhD in Civil Engineering at Bogazici Univ. (2009). He is a faculty member in Gebze Technical University. Research areas: seismic resistant design of RC structures and structural health monitoring systems.</p>
<p>Ahmet Güllü</p> 	<p>He has bachelor degree from Yıldız Technical University, Faculty of Civil Engineering (2010), MSc in Structural Engineering at Istanbul Technical University (2012), and Ph.D. in Structural and Earthquake Engineering at Istanbul Technical University. After getting his Ph. D. degree, he worked for Istanbul Gedik University as an Assistant Professor. Later, he joined SUNY University at Buffalo for postdoctoral research. Now, he is working for Texas State University. His research interest mainly covers structural engineering, earthquake resistant structural design, and passive energy dissipation in structures.</p>
<p>Ali Bozer</p> 	<p>Graduated from Yıldız Technical University, Department of Civil Engineering in 1999. He completed his master's degree in 2002 and PhD in 2009 at Boğaziçi University in the field of Civil Engineering. His main research areas are performance-based design, seismic behaviour of reinforced concrete structures and structural control systems. He is a faculty member at Eskişehir Technical University, Civil Engineering Department.</p>
<p>Hasan Özkaynak</p> 	<p>Graduated from Istanbul Technical University (ITU) Civil Engineering Department in 2000. He completed his master's degree in the Department of Earthquake Engineering at Institute of Science and Technology of ITU in 2002. He received his doctorate from Istanbul Technical University in 2010 with the study entitled "The earthquake behavior of RC frames with polymer confined infill walls and their structural damping properties." Since 2006, he has been working as a researcher in national and international research projects which were carried out in Structural and Earthquake Engineering Laboratory of ITU. Currently, he is the head of the Department of Civil Engineering at Beykent University, Faculty of Engineering and Architecture.</p>
<p>Ziya Müderrisoğlu</p> 	<p>Graduated from the Engineering Faculty/Civil Engineering Department of Dokuz Eylul University in 2007. He completed his master and PhD degrees at Istanbul Technical University in the field of Earthquake Engineering in 2009&2017, respectively. He is a faculty member at Beykent University, Civil Engineering Department. His research areas are structural and earthquake engineering, seismic resistant design of structures, and optimization algorithms.</p>

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