

# **LEARN ETABS WITH FUNDAMENTALS OF STRUCTURAL ENGINEERING**

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**ONLINE COURSE ID : ETABS-STR-002**

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## INTRODUCTION

Structural engineering related design is becoming **increasingly complex** as the **Indian standard codes** are gradually migrating towards the global design practices. Due to the same, the software are also updated frequently. It is possible that certain provisions of IS codes might not have been addressed in the latest version of the **software**. Hence, from the **quality assurance point of view**, it is utmost important for the engineers to know overall methodology adopted towards compliances of different clauses of the codes and limitations of the software.

In view of the above, we are glad to launch an online course for training related to **ETABS** software. The course is specifically designed for the professional engineers, research scholars, faculty members, students, etc. who have practical difficulties while using the software or they do not have prior exposure to the software.

**In the course, we will cover overall understanding of the software, creation of geometry, moment releases, shell elements, modelling of shear wall, application of different loads, correct approach for wind load, temperature load, assign vertical seismic loads, scaling of earthquake force, stiffness modifiers, rigid vs flexible diaphragm, check for different irregularities as per IS 1893 (Part-1):2016, P-delta analysis, design of shear wall, design of beams – columns, design of gravity columns, design of steel structures, design of composite members, soil structure interaction in the software, etc.**

**Along with the software training, we will also discuss briefly important clauses of IS codes wherein generally the practicing engineers are facing difficulties. We will also discuss methodology for validation & authentication of the software.**

*(For more details, please refer the detailed schedule given in the subsequent pages.)*

## WHAT IS UNIQUE ABOUT THE COURSE?

- ✓ The course is designed by **Bhavin Shah** who has experience of 20+ years in the industry.
- ✓ The areas wherein generally engineers are facing difficulties in the software will be addressed along with the **fundamentals of structural engineering**.
- ✓ **Study models** will be generated in **ETABS** software for understanding overall methodology of the software and to understand limitation of the software in certain areas.
- ✓ The entire course is designed from the **practical aspects** which can be readily used in the real projects.
- ✓ The course duration is nearly **1 month** to ensure ample opportunity of interaction with the faculty.
- ✓ **Certificate** for participation will be provided to the participants (minimum 80% of the attendance is required.).
- ✓ The course is designed to have an **interactive mode** so that the problems / doubts of the participants can be addressed effectively.
- ✓ **Recording** of all the sessions will be shared with the registered participants for their future reference.

## WHO SHOULD ATTEND?

This course will be useful for following :

- ✓ Practicing Structural Consultants
- ✓ Owner's consultant, Proof checking consultants
- ✓ Senior Structural Engineers in the company having experience around 10+ years
- ✓ Structural engineer having 5+ years of experience
- ✓ Young structural engineers having less than ~5 years of experience
- ✓ Faculty members
- ✓ Research scholars
- ✓ Post Graduate students in Structural Engineering
- ✓ Civil engineers who want to pursue career in structural engineering
- ✓ Civil engineering students who are interested in Structural Engineering

## COURSE FACULTY

### Bhavin Shah – Founder & CEO, SQVe Consultants



**Mr. Bhavin Shah** is passionate about Engineering profession with two decades of experience. He is having a dream for enhancing the engineering profession in different organisations. He completed graduation in Civil Engineering and Masters in Structures from Sardar Patel University. He is having unique experience of working in the specialized firm of civil / structural consultancy which grew as multidisciplinary firm (VMS), large multidisciplinary firm (L&T Chiyoda Ltd.) and owner based engineering set up (Adani Infra (I) Ltd.). He worked in different organisations at different levels, starting from junior design engineer to CEO. He is Founder & CEO of **SQVe Consultants**. He is pursuing Ph.D. in Structural Engineering related to earthquake resistant design of industrial steel structures.

## METHODOLOGY

- ✓ The entire course is designed in the **ONLINE mode**.
- ✓ The course will spread over ~**One month** with **approximate 24+ contact hours**.
- ✓ During one month of a time, the interaction can be done with faculty and the participants using **WhatsApp**.
- ✓ One month is considered so that the participants have **ample opportunities** for raising their doubts / queries related to the subject.
- ✓ The online sessions will be conducted using **ZOOM** software.

## COURSE SCHEDULE

<b>Start Date</b>	<b>23-NOV-2021</b>
<b>End Date</b>	<b>30-DEC-2021</b>
<b>Total contact hours</b>	<b>24+</b> (Sessions will be arranged on every <b>Tuesday, Thursday &amp; Saturday</b> from <b>7:30 PM IST to 9:00 PM IST.</b> )
<b>Details of each session</b>	Please refer subsequent page for details of each session.

## FEES FOR THE COURSE\*\*

<b>For practicing structural engineers, Faculty members, students <u>within India</u></b>	Cost per participant shall be <b>9400 INR</b> (inclusive of 18% GST).
<b>For practicing structural engineers, Faculty members, students <u>outside India</u></b>	Cost per participant shall be <b>150 USD.</b>

### \*\*Discount offered:

- ✓ **For continuous learner**: If you have attended earlier one course of SQVe Consultants than **5%** of discount will be offered. For prior two courses, **10%** of discount will be offered. For three or more prior courses, **15%** of discount will be offered.
- ✓ **Group participation** from a company or institute is encouraged to get the discounts on this course. For more details, pl contact us at : [etabs@sqveconsultants.com](mailto:etabs@sqveconsultants.com)

## HOW TO REGISTER FOR THE COURSE?

Please click on the following link and thereafter click on “Register Now”. Kindly note that there are limited seats.

<https://sqveconsultants.com/etabs-str-002>

Above payment gateway is only for **Indian participants**. Interested foreign engineers can contact us at the email address : [etabs@sqveconsultants.com](mailto:etabs@sqveconsultants.com). An invoice will be shared through **PayPal** for the online payment.

## SCHEDULE OF THE COURSE : RETRO-STR-001

Session no.	Title	Brief details	Date	TIME (IST)
1	Overall understanding of ETABS	<ul style="list-style-type: none"> <li>• Overview of different functions</li> <li>• Understanding graphics</li> <li>• Begin a new model</li> <li>• Creation of grid pattern</li> <li>• Tutorial</li> </ul>	23-NOV-21	7:30 PM to 9:00 PM (IST)
2	Creation of geometry and moment releases	<ul style="list-style-type: none"> <li>• Creation of geometry</li> <li>• Local axes of different elements</li> <li>• Draw column</li> <li>• Draw beam</li> <li>• Draw secondary beams</li> <li>• Moment release</li> <li>• Tutorial</li> </ul>	25-NOV-21	7:30 PM to 9:00 PM (IST)
3	Basics of shell elements and modelling of shear wall	<ul style="list-style-type: none"> <li>• Understanding of shell objects</li> <li>• Draw the floor shell objects</li> <li>• Add wall stack</li> <li>• Opening in shear wall</li> <li>• Add floor opening</li> <li>• Tutorial</li> </ul>	27-NOV-21	7:30 PM to 9:00 PM (IST)
4	Assigning gravity loads, Wind load & Temperature load	<ul style="list-style-type: none"> <li>• Define static load pattern</li> <li>• Assign gravity loads</li> <li>• Review tabular display of input data</li> <li>• Correct approach for application of wind loads</li> <li>• Discussion on temperature load</li> </ul>	30-NOV-21	7:30 PM to 9:00 PM (IST)
5	Stiffness modifiers as per IS 1893 (Part 1) : 2016	<ul style="list-style-type: none"> <li>• Basics of stiffness modifiers</li> <li>• Differences in stiffness modifiers between IS codes</li> <li>• Impact of stiffness modifiers on the behaviour of structures</li> <li>• Do's and Dont's</li> </ul>	2-DEC-21	7:30 PM to 9:00 PM (IST)

<b>6</b>	Application of seismic load	<ul style="list-style-type: none"> <li>• Empirical time period formula</li> <li>• Equivalent Static Method</li> <li>• Scaling of earthquake force</li> <li>• Response spectrum load</li> <li>• Application of vertical seismic load</li> </ul>	<b>4-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>7</b>	Rigid vs Flexible diaphragm as per IS codes	<ul style="list-style-type: none"> <li>• Brief about IS code</li> <li>• Different options available in software</li> <li>• Rigid vs Semi rigid vs Flexible diaphragm</li> <li>• Tutorial</li> </ul>	<b>7-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>8</b>	Check for different irregularities as per IS 1893 (Part 1) : 2016	<ul style="list-style-type: none"> <li>• Discussion on different irregularities</li> <li>• Soft story / Weak story</li> <li>• Torsion irregularities</li> <li>• Mode irregularities</li> </ul>	<b>9-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>9</b>	P-Delta analysis	<ul style="list-style-type: none"> <li>• When to perform P-Delta analysis?</li> <li>• Requirements as per IS code</li> <li>• Options available in software for P-Delta analysis</li> <li>• Pros and Cons of different options related to P-Delta analysis</li> <li>• How to use results of P-Delta analysis in the design?</li> </ul>	<b>11-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>10</b>	Design of shear wall as per IS 13920 : 2016	<ul style="list-style-type: none"> <li>• Requirements of IS 13920 : 2016 for shear wall</li> <li>• Modelling requirements for shear wall</li> <li>• Define Spandrel and Pier elements in software</li> <li>• Interpretation of results from the software</li> <li>• Design of shear wall</li> </ul>	<b>14-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>11</b>	Design of beam and columns as per IS 13920 : 2016	<ul style="list-style-type: none"> <li>• Requirements of IS 13920 : 2016 for beams and columns</li> <li>• Design parameters for beams and columns</li> <li>• Effect of axial force in the design of beam and how to consider in the software?</li> </ul>	<b>16-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>

		<ul style="list-style-type: none"> <li>• Check for Strong Column – Weak beam concept for column-beam junctions</li> <li>• Design of beams and columns</li> </ul>		
<b>12</b>	Design of gravity column as per IS 13920 : 2016	<ul style="list-style-type: none"> <li>• Requirement of the IS code</li> <li>• Methodology to be adopted in the software</li> <li>• Two models to be created</li> <li>• Interpretation of the results and design of the gravity column</li> </ul>	<b>18-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>13</b>	Overview for Design of steel structures in ETABS as per IS 800:2007 – (Part 1)	<ul style="list-style-type: none"> <li>• Overview of IS 800:2007</li> <li>• Discussion on few important limit states for design</li> <li>• Analysis options in the software</li> <li>• Buckling analysis</li> </ul>	<b>21-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>14</b>	Overview for Design of steel structures in ETABS as per IS 800:2007 – (Part 2)	<ul style="list-style-type: none"> <li>• P-Delta analysis for steel structures</li> <li>• Consideration of section 12 of the code in the software</li> <li>• Design parameters available in the software</li> <li>• Interpretation of the design results for beam and columns, etc.</li> </ul>	<b>23-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>15</b>	Overview of design of composite members in ETABS	<ul style="list-style-type: none"> <li>• Design concepts for composite members</li> <li>• Design methodology in the software</li> <li>• Design parameters available in the software</li> <li>• Interpretation of the design results in the software</li> </ul>	<b>28-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>
<b>16</b>	Soil structure interaction in the software	<ul style="list-style-type: none"> <li>• Modulus of subgrade reaction</li> <li>• Modelling of soil and foundations</li> <li>• Impact on the design results</li> <li>• Interpretation of the design results in the software</li> <li>• Variation of soil property</li> </ul>	<b>30-DEC-21</b>	<b>7:30 PM to 9:00 PM (IST)</b>

## About SQVe Consultants

**SQVe Consultants** is a recently established innovative company with a vision of enhancing the engineering profession. The name of the company is derived from first letters of goals of engineering, i.e. **S**chedule adherence, **Q**uality assurance & **Ve** -Value Engineering.

Our ALL services are designed to have maximum of ONLINE interaction with the least OFFLINE interaction.

We look forward for long term association with different organisations for enhancement of engineering profession through our unique services. We also provide mentoring to the structural engineers through one-on-one session.

For more details, please refer website : <https://sqveconsultants.com>  
You may contact us at email address : [contact@sqveconsultants.com](mailto:contact@sqveconsultants.com)

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