LIVE

STEEL-STR-004

SQVe Engineering

ONLINE COURSE

DESIGN OF

STEEL STRUCTURES

AS PER

IS 800:2007

ALONG WITH

SOFTWARE

STAAD.Pro

RAM Connection

Time :
8:30 PM TO
10:00 PM IST

4-JAN-23

TO

24-FEB-23

Link : https://sqveconsultants.com/steel-str-004

Email : steel@sqveconsultants.com

INTRODUCTION

For design of steel structures, IS 800:2007 was published before ~14 years but still there are many practical difficulties related to implementation of the IS code. It is not a conventional revision of the code as there is complete change in design philosophy from working stress design method to limit state design method. There are practical difficulties since commentary on the code along with practical examples are not available. Also, there are certain gaps between the latest IS code and the current popular software.

In view of the above, we launched earlier online course STEEL-STR-001 & STEEL-STR-002. After grand success of the same, we are glad to launch the comprehensive online course **STEEL-STR-004** for design of steel structures.

The course is designed based on the practical difficulties which are being faced in the industry for design of steel structures.

The course will cover discussion on important clauses of the code as well as application of same in the software STAAD.Pro & RAM connection. The course will cover the important areas such as possibilities of cost optimisation, second order elastic analysis, plastic analysis, elastic buckling load factor, moment amplification factors, effective length calculations, different limit states, block shear, lateral torsional buckling, earthquake resistant design, wind load and seismic load application in the software, MBMA vs IS codes, design parameters in the software, design of taper members, design of gantry girder, design of shear connections, design of moment connections, bolted & welded connections, connection design using RAM connection software, validation of the software, highlighting gap areas between IS codes & software…and many more!!

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**
- ✓ **Junior Structural Engineers in the company**
- ✓ **PEB design engineers**
- ✓ **Civil/structural engineers who do not have prior exposure of steel structures and want to learn from first fundamental**
- ✓ **Post Graduate students in Structural Engineering**
- ✓ **Civil engineering students who are interested in Structural Engineering.**

WHAT IS UNIQUE ABOUT THIS COURSE?

The course is designed by the **experienced engineer** (Mr. Bhavin Shah) who have more than two decades of experience in the field of structural engineering.

- ✓ The entire course is designed from the **practical aspects** which can be readily used in the real projects.
- ✓ The course is designed to have an **interactive mode** so that the problems / doubts of the participants can be addressed effectively.
- ✓ A WhatsApp group will be created for **quick communication** between the participants and the faculty. The participants will be able to share the discussion points, doubts, queries, etc. in the group. The details in the group will be collated for further discussion in the next sessions.
- ✓ All the sessions will be recorded and recording of each session will be shared **within few hours**. If someone miss out the live session then he/she can go through the recording before attending the next session. The participants can share the doubts/queries in the WhatsApp group, after going through the recording which will be addressed in the next session.
- ✓ The important clauses of the IS code will be discussed along with the software **STAAD.Pro** and **RAM connection**.
- ✓ **Recording** will be available with all the participants for **180 days**.
- ✓ **Certificate** will be issued on successful completion of the online course (minimum 80% attendance is required.).
- ✓ The course is designed as a **process of learning together**.

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 ~**two months** with **approximate 33+ contact hours.**
- ✓ During two months of a time, the interaction can be done with faculty and the participants using **WhatsApp**.
- ✓ The participants will be encouraged to share their **real project problems** during the course. We will discuss possible solutions for the same.
- ✓ Two months are 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.
- ✓ The course is designed as a **process of learning together**.

COURSE SCHEDULE

Start Date	**4-JAN-2023**
End Date	**24-FEB-2023**
Total contact hours	**33+** (Sessions will be arranged on every **Monday**, **Wednesday & Friday** from **8:30 PM IST to 10:00 PM IST**.)
Details of each session	Please refer subsequent page for details of each session.

FEES FOR THE COURSE**

For participant <u>from India</u>	Cost per participant shall be **16500 INR** (inclusive of 18% GST).
For participant <u>from outside India</u>	Cost per participant shall be **225 USD.**

****Discount offered**:

- ✓ **<u>For continuous learner</u>**: 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. To avail the discount, please send us an email at : steel@sqveconsultants.com . We will arrange to send an invoice considering the discount for online payment.

- ✓ **Group participation** from a company or institute is encouraged to get the discounts on this course. For more details, pl contact us at the above mentioned email address.

HOW TO REGISTER FOR THE COURSE?

Please click on the following link and thereafter click on "**Register Now**" button at bottom of the page. You will be directed to the **payment page**. Your registration will be confirmed after receipt of the payment at portal.

https://sqveconsultants.com/steel-str-004

Important notes:

The above payment gateway will accept card only. If you prefer other type of payments such as net banking, UPI, Goggle Pay, etc. then please message us. We will arrange details for the same.

Payment gateway at the above-mentioned portal is configured only for **Indian participants**. Interested foreign engineers can contact us at the email address : steel@sqveconsultants.com. An invoice will be shared through **PayPal** for online payment.

Kindly note that there are limited seats.

Your any queries/ doubts related to the course shall be addressed to the above mentioned email address.

SCHEDULE OF THE COURSE : STEEL-STR-004

Session no.	Brief details	Date	Time (IST)
1	**Overview of IS 800:2007 & Changes made in NBC 2016 for design of steel structures** ⇨ Quick overview of IS 800:2007 ⇨ Changes with reference to latest IS 800:2007 ⇨ Changes in Design of slender members ⇨ Changes in earthquake resistant design provisions, etc.	**4-JAN-23 (Wednesday)**	**8:30 PM TO 10:00 PM**
2	**Second order elastic analysis, Elastic buckling load factor as per IS 800:2007 and software** ⇨ Concept of elastic buckling load factor ⇨ Brief about second order elastic analysis ⇨ Performing buckling analysis in the software ⇨ Performing second order elastic analysis in the software ⇨ Limitations of the software while performing buckling analysis and second order elastic analysis, etc.	**6-JAN-23 (Friday)**	**8:30 PM TO 10:00 PM**
3	**Concept of notional load Plastic analysis as per IS 800:2007 and software** ⇨ Importance of notional load ⇨ Notional load as per IS code ⇨ Application of notional load in the software ⇨ Brief about plastic analysis ⇨ Discussion on potential of cost saving through plastic analysis ⇨ Performing plastic analysis in the software, etc.	**9-JAN-23 (Monday)**	**8:30 PM TO 10:00 PM**
4	**Design of Tension member as per IS 800:2007 and software** ⇨ Discussion on design of tension member as per IS code ⇨ Understanding different limit states such as yielding, rupture, block shear, shear lag, etc ⇨ Design parameters in software for tension member ⇨ Performing design of tension member in software ⇨ Comparison of results from software with manual calculations, etc.	**11-JAN-23 (Wednesday)**	**8:30 PM TO 10:00 PM**

Session no.	Brief details	Date	Time (IST)
5	**Design of Compression member as per IS 800:2007 and software** ⇨ Discussion on design of compression member as per IS code ⇨ Understanding limit state of flexural buckling ⇨ Design parameters in software for compression member ⇨ Performing design of compression member in software ⇨ Comparison of results from software with manual calculations, etc.	**16-JAN-23 (Monday)**	**8:30 PM TO 10:00 PM**
6	**Design of member under bending as per IS 800:2007, Elastic flexural torsional buckling and software** ⇨ Discussion on design of member under pure bending as per IS code ⇨ Understanding limit state of lateral torsional buckling ⇨ Design parameters in software for member under pure bending ⇨ Performing design of member in the software for pure bending ⇨ Discussion on Annexure E of IS code ⇨ Comparison of results from software with manual calculations ⇨ Highlighting major limitations of the software ⇨ Possibilities of cost optimisation, etc.	**18-JAN-23 (Wednesday)**	**8:30 PM TO 10:00 PM**
7	**Design of gantry girder** ⇨ Functional requirements of the gantry girder ⇨ Importance of gantry girder in industrial buildings ⇨ Different loads such as wheel load, impact load, lateral load, longitudinal load, etc. ⇨ Calculation of design forces for the gantry girder ⇨ Generating built-up member in the software ⇨ Design of gantry girder ⇨ Interface require with the manufacturer related to permissible deflection, etc.	**20-JAN-23 (Friday)**	**8:30 PM TO 10:00 PM**
8	**Design of member under axial compression + bending in both directions as per IS 800:2007 and software** ⇨ Discussion on design of member for combined forces as per IS code ⇨ Understanding limit state of lateral torsional buckling for the column member	**23-JAN-23 (Monday)**	**8:30 PM TO 10:00 PM**

Session no.	Brief details	Date	Time (IST)
	⇨ Design parameters in software for member having combined forces ⇨ Performing design of member in the software for combined forces ⇨ Comparison of results from software with manual calculations ⇨ Highlighting major limitations of the software ⇨ Possibilities of cost optimisation, etc.		
9	**Fundamentals of steel connection design** ⇨ Structural behaviour and connections ⇨ Importance of conceptual thinking ⇨ How type of connection to be decided? ⇨ Iterative process of connection design and structural analysis, etc. ⇨ Importance of connection design in the structure ⇨ Overall philosophy of the connection design, etc. ⇨ Shear connection ⇨ Positioning for holes ⇨ Slip resistant connection ⇨ Block shear ⇨ Prying forces, etc. ⇨ Welding consumables ⇨ Type of welds ⇨ Design resistance of Fillet welds ⇨ Design resistance of Butt welds ⇨ Long joints, etc.	**25-JAN-23 (Wednesday)**	**8:30 PM TO 10:00 PM**
10	**Understanding of different types of Shear connections** ⇨ Beam to beam and beam to column connections ⇨ Partial depth end plates ⇨ Full depth end plates ⇨ Fin plates ⇨ Column splices ⇨ Column bases ⇨ Bracing connections ⇨ Examples, etc.	**27-JAN-23 (Friday)**	**8:30 PM TO 10:00 PM**
11	**Design of different types of shear connections using RAM connection software** ⇨ Beam to beam and beam to column connections ⇨ Partial depth end plates ⇨ Full depth end plates ⇨ Fin plates ⇨ Column splices	**30-JAN-23 (Monday)**	**8:30 PM TO 10:00 PM**

Session no.	Brief details	Date	Time (IST)
	⇨ Column bases ⇨ Bracing connections ⇨ Examples, etc.		
12	**Understanding of different types of Moment connections** ⇨ Bolted beam to column connection ⇨ Welded beam to column connection ⇨ Splices ⇨ Column bases ⇨ Discussion on anchor bolt design, etc.	**1-FEB-23 (Wednesday)**	**8:30 PM TO 10:00 PM**
13	**Design of different types of Moment connections using RAM connection software** ⇨ Bolted beam to column connection ⇨ Welded beam to column connection ⇨ Splices ⇨ Column bases, etc.	**3-FEB-23 (Friday)**	**8:30 PM TO 10:00 PM**
14	**Comparison of steel connection design as per IS code and RAM connection software** ⇨ Comparison of manual calculations vs results of RAM connection ⇨ Shear connections ⇨ Moment connections ⇨ Few gap areas in IS code ⇨ How to bridge the gap areas?, etc.	**6-FEB-23 (Monday)**	**8:30 PM TO 10:00 PM**
15	**Earthquake resistant design (Section 12) as per IS 800:2007 and software** ⇨ Overview of section 12 ⇨ Different types of frames ⇨ Value of Response Reduction Factor ⇨ Connection detailing ⇨ Requirement of joint rotation ⇨ Design parameter in software for section 12 ⇨ Limitations of the software	**8-FEB-23 (Wednesday)**	**8:30 PM TO 10:00 PM**
16	**Calculation of wind load for shed type of structure & application in software** ⇨ Overview of IS 875 (Part 3): 2015 for low rise structures ⇨ Internal and external pressure coefficients ⇨ Wind pressure calculations ⇨ Application of wind load in software	**10-FEB-23 (Friday)**	**8:30 PM TO 10:00 PM**

Session no.	Brief details	Date	Time (IST)
17	**Calculation of seismic load for shed type of structure & application in software** ⇨ Overview of IS 1893 (part 1):2016 for response spectrum analysis requirements ⇨ Modal analysis in software ⇨ Time period verification ⇨ Mass participation factors ⇨ Checking the results of response spectrum analysis ⇨ Major limitation of response spectrum analysis	**13-FEB-23 (Monday)**	**8:30 PM TO 10:00 PM**
18	**IS 800:2007 vs MBMA?** ⇨ Brief about MBMA ⇨ Discussion on queries received from engineers ⇨ Can we follow MBMA in India? ⇨ Can we mix different codes for design of the structure? ⇨ What about contractual liability?, etc.	**15-FEB-23 (Wednesday)**	**8:30 PM TO 10:00 PM**
19	**Case study – Design parameters & interpretation of results for shed type of structure (Part 1)** ⇨ Overview of structural system ⇨ How to decide braced bay locations? ⇨ Modelling of tapered section ⇨ Load application ⇨ Typical Design parameters in the software ⇨ Performing design of few members in software ⇨ Steel connection design using RAM connection software, etc.	**17-FEB-23 (Friday)**	**8:30 PM TO 10:00 PM**
20	**Case study – Design parameters & interpretation of results for shed type of structure (Part 1)** ⇨ Overview of structural system ⇨ Braced bay vs moment resisting bays ⇨ Load applications from equipment, piping, etc. ⇨ Typical Design parameters in the software ⇨ Performing design of few members in software ⇨ Steel connection design using RAM connection software, etc.	**20-FEB-23 (Monday)**	**8:30 PM TO 10:00 PM**
21	**Case study – Design parameters & interpretation of results for shed type of structure (Part 2)** ⇨ Overview of structural system ⇨ Braced bay vs moment resisting bays ⇨ Load applications from equipment, piping, etc. ⇨ Typical Design parameters in the software ⇨ Performing design of few members in software	**22-FEB-23 (Wednesday)**	**8:30 PM TO 10:00 PM**

Session no.	Brief details	Date	Time (IST)
	⇨ Steel connection design using RAM connection software, etc.		
22	**Open discussion** ⇨ Concluding remarks ⇨ Discussion on balance queries/doubts from the participants ⇨ Way-forward	**24-FEB-23 (Friday)**	**8:30 PM TO 10:00 PM**

About SQVe Consultants

SQVe Consultants (SQVe) is a recently established company with a vision of enhancing the engineering profession. Name of the company is derived from the first letters of major goals of engineering, i.e. **S**chedule adherence, **Q**uality assurance & **V**alue **e**ngineering. For success of any project, it is required that all these goals are considered simultaneously in the projects. However, in today's fast track projects, it is indeed difficult to address all the goals in the design engineering cycle simultaneously. We believe that for achieving these desired goals, there are many developmental activities (off-project) required in the organisations for continual improvement. Our all services are designed to assist different organizations to achieve the engineering goals. We intend to collaborate with the different organisations for long term basis and aim towards enhancing the engineering profession through our unique services. Our values are Innovation, Commitment & Integrity. Your partner for achieving engineering goals!

We also provide coaching/mentoring to the structural engineers through one-on-one sessions. Please get in touch with us for any requirements related to online training related to civil/structural engineering as well as in the area of people management.

For more details, please refer website : https://sqveconsultants.com
You may contact us at email address : contact@sqveconsultants.com

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