

Kandula Srinivasa Reddy Memorial College of Engineering
(Autonomous)

Kadapa-516003. AP

(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)

(An ISO 9001-2008 Certified Institution)

Department of Civil Engineering



Certification Course

on

Design of Multi-Storeyed building using STAAD Pro.



Course Instructor: Dr. P. Kishore Kumar Reddy, Associate Professor, CED, KSRMCE

Course Coordinators: Sri P. Pavan Kumar and Sri V. Jyothish Naidu,
Assistant Professor, CED, KSRMCE

Date Duration of Course offered: 26/04/21 to 11/05/21



K.S.R.M. COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Lr./KSRMCE/CE/2020-21/

Date: 19-04-2021

From

Sri P. Pavan Kumar and Sri V. Jyothish Naidu,
Asst. Professor and Course Coordinator,
Dept. of Civil Engineering,
KSRMCE (A),
Kadapa.

To

The Principal,
KSRMCE (A),
Kadapa.

Sub: Permission to Conduct Certificate Course – Reg.

Respected Sir,

The Department of Civil Engineering is planning to offer a certification course on "Design of multi-storeyed building using STAAD Pro" to B. Tech. students of Civil Engineering. The course will start on 26th April 2021 to 11th May 2021 and the course will run for a total number of 30 hours. In this regard, I am requesting you to accept the proposal to conduct certificate course.

Thanking you

Yours faithfully

(Sri P. Pavan Kumar & Sri V. Jyothish Naidu)

Permitted
V. S. S. Murthy



/kasmce.ac.in

Follow Us:



/kasmceofficial



K.S.R.M. COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Cr./KSRMCE/CE/2020-21/

Date: 20/04/2021

Circular

The Department of Civil Engineering is offering a certification course on "Design of multi-storeyed building using STAAD Pro". The course will start on 26-04-2021 and the course will run for a total number of 30 hours. In this regard, interested students of Civil Engineering are required to register for the Certification Course. The registration link is given below.

<https://docs.google.com/forms/f/g/1FAIpPLScJmZKShHZZcJBvAnYSjI22pjWfgxBBCc5CKn6GsR2GfNdT9w/vi ewform>

For any information regarding the course contact,

The Course Coordinator
Sri P. Pavan Kumar and Sri V. Jyothish Naidu,
Assistant Professor,
Dept. of Civil Engg.-KSRMCE.

V. S. S. Murthy

Principal

Cc to:

The Director, KSRMCE

The HoD-Civil, KSRMCE

IQAC-KSRMCE

PRINCIPAL
K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)



/kasmce.ac.in

Follow Us:



/kasmceofficial



K.S.R.M. COLLEGE OF ENGINEERING (UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Department of Civil Engineering


Registration list of Certification course
on

Design of Multi-Storeyed building using STAAD Pro.

Sl. No.	Student Roll No.	Student Name	Mail ID
1	179Y1A0105	Sethaswi Bedudoori	179Y1A0105@ksrmce.ac.in
2	179Y1A0106	Nikhil Kumar Reddy Bhavanasi	179Y1A0106@ksrmce.ac.in
3	179Y1A0107	Geetha Bhuma	179Y1A0107@ksrmce.ac.in
4	179Y1A0113	Venkatesh Naik Bukke	179Y1A0113@ksrmce.ac.in
5	179Y1A0115	Pallavi Chatta	179Y1A0115@ksrmce.ac.in
6	179Y1A0119	Zaheer Dade	179Y1A0119@ksrmce.ac.in
7	179Y1A0122	Jayachandra Derangula	179Y1A0122@ksrmce.ac.in
8	179Y1A0123	Siddaiah Dollu	179Y1A0123@ksrmce.ac.in
9	179Y1A0124	Suresh Gowd Ediga	179Y1A0124@ksrmce.ac.in
10	179Y1A0126	Ashok Kumar Galeti	179Y1A0126@ksrmce.ac.in
11	179Y1A0129	Pullaiah Gokula	179Y1A0129@ksrmce.ac.in
12	179Y1A0130	Ramamanohar Reddy Gollapalle	179Y1A0130@ksrmce.ac.in
13	179Y1A0133	Dharani Jonnavaram	179Y1A0133@ksrmce.ac.in
14	179Y1A0134	Manasa Juturu	179Y1A0134@ksrmce.ac.in
15	179Y1A0136	Himaja Kancharla	179Y1A0136@ksrmce.ac.in
16	179Y1A0139	Vivekananda Reddy Kota	179Y1A0139@ksrmce.ac.in
17	179Y1A0146	Madhu Kiran Reddy Bannuru	179Y1A0146@ksrmce.ac.in
18	179Y1A0147	Thimmappa Madiga	179Y1A0147@ksrmce.ac.in

19	179Y1A0155	Manjunatha Muttalahgari	179Y1A0155@ksrmce.ac.in
20	179Y1A0157	Prathima Nagooru	179Y1A0157@ksrmce.ac.in
21	179Y1A0158	Vijaya Kumari Nalla	179Y1A0158@ksrmce.ac.in
22	179Y1A0166	Venkata Sunil Kumar Reddy P	179Y1A0166@ksrmce.ac.in
23	179Y1A0174	Bhanu Prakash Peddaalankolla	179Y1A0174@ksrmce.ac.in
24	179Y1A0178	Vinodh Kumar Reddy Pokala	179Y1A0178@ksrmce.ac.in
25	179Y1A0182	Susma Saraballa	179Y1A0182@ksrmce.ac.in
26	179Y1A0183	Gaffar Sayyad	179Y1A0183@ksrmce.ac.in
27	179Y1A0184	Abdul Rehaman Shaik	179Y1A0184@ksrmce.ac.in
28	179Y1A0197	Surya Thammisetty	179Y1A0197@ksrmce.ac.in
29	179Y1A0198	Rajesh Thotakanama	179Y1A0198@ksrmce.ac.in
30	179Y1A01A1	Maheswari Undela	179Y1A01A1@ksrmce.ac.in
31	179Y1A01A2	Siva Kumar Upparapalli	179Y1A01A2@ksrmce.ac.in
32	179Y1A01A5	Keerthana Vodiveeti	179Y1A01A5@ksrmce.ac.in
33	179Y1A01A6	Rekha Devi Yarasani	179Y1A01A6@ksrmce.ac.in
34	179Y1A01A7	Lokesh Yarragolla	179Y1A01A7@ksrmce.ac.in
35	179Y1A01A8	Venkata Lakshmi Yarraguntla	179Y1A01A8@ksrmce.ac.in
36	189Y5A0102	Siva Gangadhar Alavalapadu	189Y5A0102@ksrmce.ac.in
37	189Y5A0104	Dharani Kamalakara Rao Appalarajugari	189Y5A0104@ksrmce.ac.in
38	189Y5A0106	Niranjan Attinjery	189Y5A0106@ksrmce.ac.in
39	189Y5A0107	Suresh Banka	189Y5A0107@ksrmce.ac.in
40	189Y5A0109	Srinatha Reddy Bhumireddy	189Y5A0109@ksrmce.ac.in
41	189Y5A0110	Purushothamreddy Bijivemula	189Y5A0110@ksrmce.ac.in
42	189Y5A0113	Kiran Kumar Bolleddu	189Y5A0113@ksrmce.ac.in
43	189Y5A0120	Swetha Damsetty	189Y5A0120@ksrmce.ac.in
44	189Y5A0126	Shireesha Guramkonda	189Y5A0126@ksrmce.ac.in
45	189Y5A0127	Nikitha Jaladi	189Y5A0127@ksrmce.ac.in

46	189Y5A0128	Venkata Subbaiah Janapati	189Y5A0128@ksrmce.ac.in
47	189Y5A0129	Nethajee Reddy Jerripothula	189Y5A0129@ksrmce.ac.in
48	189Y5A0132	Yaswanth Reddy Kambham	189Y5A0132@ksrmce.ac.in
49	189Y5A0134	Sree Hari Reddy Katthi	189Y5A0134@ksrmce.ac.in
50	189Y5A0135	Nagesh Kolliboina	189Y5A0135@ksrmce.ac.in
51	189Y5A0138	Prasanth Kumar Kotturu	189Y5A0138@ksrmce.ac.in
52	189Y5A0139	Ganga Maheswara Reddy Kudumula	189Y5A0139@ksrmce.ac.in
53	189Y5A0140	Suresh Kuruva	189Y5A0140@ksrmce.ac.in
54	189Y5A0146	Venkata Ramana Reddy Nimmakayala	189Y5A0146@ksrmce.ac.in
55	189Y5A0159	Abilash Reddy Sajjala	189Y5A0159@ksrmce.ac.in
56	189Y5A0162	Naveen Kumar Sepuri	189Y5A0162@ksrmce.ac.in
57	189Y5A0169	Sham Babu Thallapaka	189Y5A0169@ksrmce.ac.in
58	189Y5A0170	Chandra Kanth Thatamsetty	189Y5A0170@ksrmce.ac.in
59	189Y5A0171	Divya Thonduru	189Y5A0171@ksrmce.ac.in
60	189Y5A0172	Parameswara Reddy Thummala	189Y5A0172@ksrmce.ac.in
61	189Y5A0173	Vamsi Tudumu	189Y5A0173@ksrmce.ac.in


Coordinator


HoD-Civil Engg.

Head
Department of Civil Engineering
K.S.R.M. College of Engineering
(Autonomous)
KADAPA 516 003. (A.P.)

Syllabus of Certification Course

Course Name: Design of Multi-Storeyed Building using STAAD Pro.

Duration: 30 Hours

Module I:

Installation of STAAD Pro. in windows computer system, Creating Models, Structures, Graphical Interface, Specify Member Properties, Specify Material Constants, Specify Supports, Specify Loads, Specify Analysis Type, Annotating the Displacements, Creating Models of a Reinforced, Concrete Framed Structure.

Module II:

Creating simple beams with different support conditions, Applying point load, Uniformly Distribute Loads, Uniformly Varying loads on beam member, shear force & bending moment diagrams, Report preparation.

Module III:

Modeling Truss members using GUI of STAAD Pro., applying loads on truss members, finding member forces and joint reactions using STAAD Pro., Report preparation.

Module IV

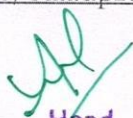
Interactive Design Information, Creating Multy-Storeyed Models Using Graphical Interface, Performing Analysis and Designing, Viewing Results Using the Output File, Viewing Post Post –Processing, Producing on Onscreen Report

Text Books:

1. T.S. Sarma, Staad Pro V8i for Beginners: With Indian Examples, Notion Press; 1st edition (1 January 2014).
2. Sham Tickoo, Learning Bentley Staad.Pro V8I for Structural Analysis, Dreamtech Press (10 June 2015).

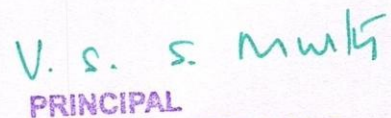
References:

1. Learn Yourself Staad.Pro V8i , LAP Lambert Academic Publishing
2. <https://www.bentley.com/en/products/product-line/structural-analysis-software/staadpro>



Head

Department of Civil Engineering
K.S.R.M. College of Engineering
(Autonomous)
KADAPA 516 003. (A.P.)



PRINCIPAL

K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)



K.S.R.M. COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Department of Civil Engineering

Certification course on "Design of Multi-Storeyed building using STAAD Pro."

Date	Timing	Course Instructor	Topic to be covered
26/04/21	3 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module I: STAAD Pro. installation, Basic knowledge on STAAD Pro. GUI, creating models, Specify Supports, Specify Loads, Specify Analysis Type, Annotating the Displacements, Creating Models of a Reinforced, Concrete Framed Structure
27/04/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module I: STAAD Pro. installation, Basic knowledge on STAAD Pro. GUI, creating models, Specify Supports, Specify Loads, Specify Analysis Type, Annotating the Displacements, Creating Models of a Reinforced, Concrete Framed Structure
28/04/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module I: STAAD Pro. installation, Basic knowledge on STAAD Pro. GUI, creating models, Specify Supports, Specify Loads, Specify Analysis Type, Annotating the Displacements, Creating Models of a Reinforced, Concrete Framed Structure
29/04/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module II: Analysis of beams using STAAD Pro.
30/04/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module II: Analysis of beams using STAAD Pro.
01/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module II: Analysis of beams using STAAD Pro.
03/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module III: Analysis of Trusses using STAAD Pro.
04/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module III: Analysis of Trusses using STAAD Pro.
05/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module IV: Analysis and Design of Multy-Storeyed Building.
06/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module IV: Analysis and Design of Multy-Storeyed Building.
07/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module IV: Analysis and Design of Multy-Storeyed Building.
08/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module IV: Analysis and Design of Multy-Storeyed Building.
10/05/21	4 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module IV: Analysis and Design of Multy-Storeyed Building.
11/05/21	3 PM to 6 PM	Dr. P. Kishore Kumar Reddy	Module IV: Report generation and reading STAAD Pro. reports.

Instructor: *P. Kishore Kumar*

Coordinators: *V. Jyothish*

V. S. S. M. M. M. M.

Principal

PRINCIPAL

**K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)**



/ksrmce.ac.in

Follow Us:



/ksrmceofficial



K.S.R.M. COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Report

of

Certification Course on Design of Multi-Storeyed building using STAAD Pro.

From 26-04-2021 to 11-05-2021

Target Group	:	Students
Details of Participants	:	61 Students
Co-coordinator(s)	:	Sri P. Pavan Kumar & Sri V. Jyothish Naidu
Organizing Department	:	Civil Engineering
Venue	:	Online (google meet)
Link:		https://meet.google.com/lookup/ca55jeaskk

Description:

The Department of Civil Engineering offered the certification course on "Design of Multi-Storeyed building using STAAD Pro" from 26-04-2021 to 11-05-2021 and the course was organized for a total number of 30 hours. The course was instructed by Dr. P. Kishore Kumar Reddy (Associate Professor, Dept. Civil Engg.) and coordinated by Sri P. Pavan Kumar & Sri V. Jyothish (Assistant Professor, Dept. of Civil Engg.).

STAAD.Pro is one of the most widely used structural analysis and design software products worldwide. It can apply more than 90 international steel, concrete, timber and aluminium design codes. It can make use of various forms of analysis from the traditional static analysis to more recent analysis methods like p-delta analysis, geometric non-linear analysis, Pushover analysis (Static-Non Linear Analysis) or a buckling analysis. It can also make use of various forms of dynamic analysis methods



/ksrmce.ac.in

Follow Us:

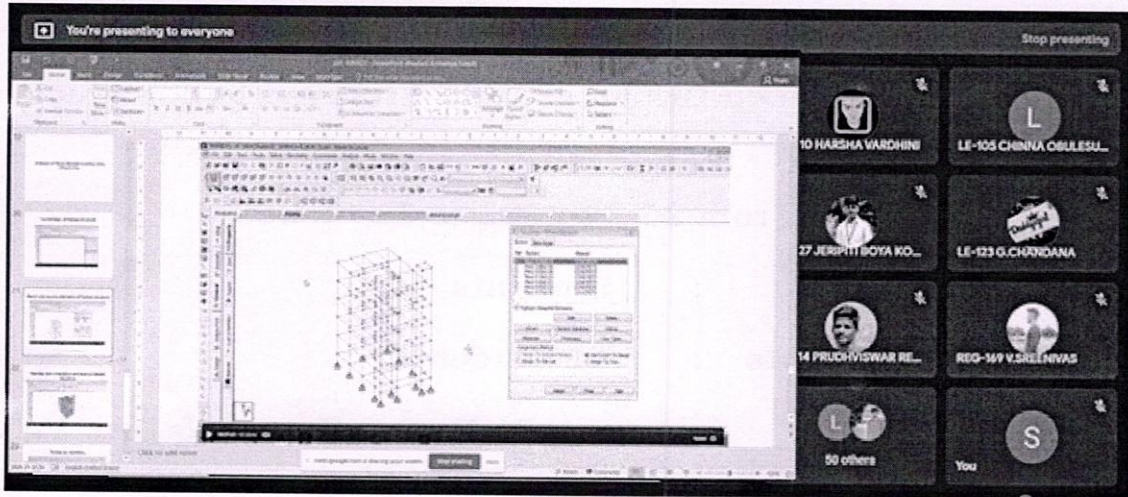


/ksrmceofficial

from time history analysis to response spectrum analysis. The response spectrum analysis feature is supported for both user defined spectra as well as a number of international code specified spectra.

The course was designed by considering the student are new to the STAAD Pro. software. The course started by giving instruction to process of installing the software and brief on various installation problems. The course ended by designing a multi-story building.

Photo:



P. Venkatesh
(Course Instructor)

ASL
(HoD, Civil Engg.)
Head
Department of Civil Engineering
K.S.R.M. College of Engineering
(Autonomous)
KADAPA 516 003. (A.P.)

V. S. S. Murthy
Principal
PRINCIPAL
K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)



K.S.R.M. COLLEGE OF ENGINEERING (UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu

DEPARTMENT OF CIVIL ENGINEERING

essing | Steel Design | Concrete Design | Foundation Design | RAM Connection | Bridge Deck | Advanced Slab Design | Piping | Earthquake

Certificate Course on

"Design of multi-storeyed building using STAAD Pro"

Resource Person

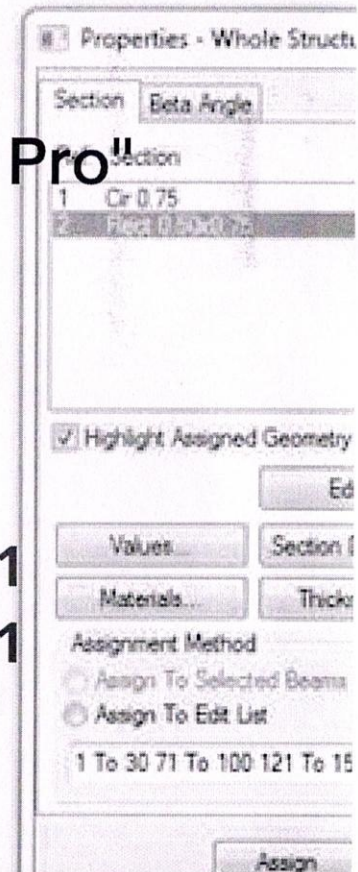
Dr. P. Kishore Kumar Reddy
Department of Civil Engineering

Coordinators: Sri P Pavan KumSri P. Pavan Kumar,
Sri V. Jyothish Naidu, Assistant Professor



26-04-2021

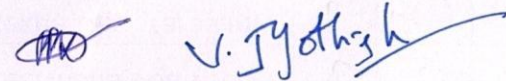
11-05-2021

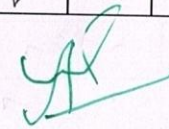


Modeling Mo

16	179Y1A0139	Vivekananda Reddy Kota	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	179Y1A0146	Madhu Kiran Reddy Bannuru	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓
18	179Y1A0147	Thimmappa Madiga	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	179Y1A0155	Manjunatha Muttalahgari	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓
20	179Y1A0157	Prathima Nagooru	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	179Y1A0158	Vijaya Kumari Nalla	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	179Y1A0166	Venkata Sunil Kumar Reddy P	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	A	✓
23	179Y1A0174	Bhanu Prakash Peddaalankolla	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓
24	179Y1A0178	Vinodh Kumar Reddy Pokala	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	179Y1A0182	Susma Saraballa	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26	179Y1A0183	Gaffar Sayyad	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
27	179Y1A0184	Abdul Rehaman Shaik	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	179Y1A0197	Surya Thammisetty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
29	179Y1A0198	Rajesh Thotakanama	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30	179Y1A01A1	Maheswari Undela	A	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	A	✓
31	179Y1A01A2	Siva Kumar Upparapalli	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓

48	189Y5A0132	Yaswanth Reddy Kambham	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
49	189Y5A0134	Sree Hari Reddy Katthi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
50	189Y5A0135	Nagesh Kolliboina	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
51	189Y5A0138	Prasanth Kumar Kotturu	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
52	189Y5A0139	Ganga Maheswara Reddy Kudumula	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
53	189Y5A0140	Suresh Kuruva	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
54	189Y5A0146	Venkata Ramana Reddy Nimmakayala	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
55	189Y5A0159	Abilash Reddy Sajjala	A	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
56	189Y5A0162	Naveen Kumar Sepuri	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
57	189Y5A0169	Sham Babu Thallapaka	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓
58	189Y5A0170	Chandra Kanth Thatamsetty	A	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	A	✓
59	189Y5A0171	Divya Thonduru	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
60	189Y5A0172	Parameswara Reddy Thummala	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
61	189Y5A0173	Vamsi Tudumu	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓


Coordinator


HoD-Civil Engg. Head
Department of Civil Engineering
K.S.R.M. College of Engineering
(Autonomous)
KADAPA 516 003. (A.P.)

Chapter 1 | Introduction

Staad is similar to your Engineering Calculator, whatever operation you assign to it, it performs and gives you the result you need. We can do all the operations of the calculator manually as we know concepts of mathematics. In the same way STAAD can be considered as a Structural Engineering Calculator you can assign multiple operations and designs to a structure then staad will perform the analysis of all the operations you provided and present you the result. The result may be just reactions or a complete design.

We can do all the work which Staad will perform and make our manual design. If you do know the design concepts prior to using the staad then you will know how to use staad to its maximum. If you directly do designs with staad without knowing design concepts then it will be like a two year baby playing with abacus. So our kind request is to know the design concepts and perform your design on paper before taking staad output results.

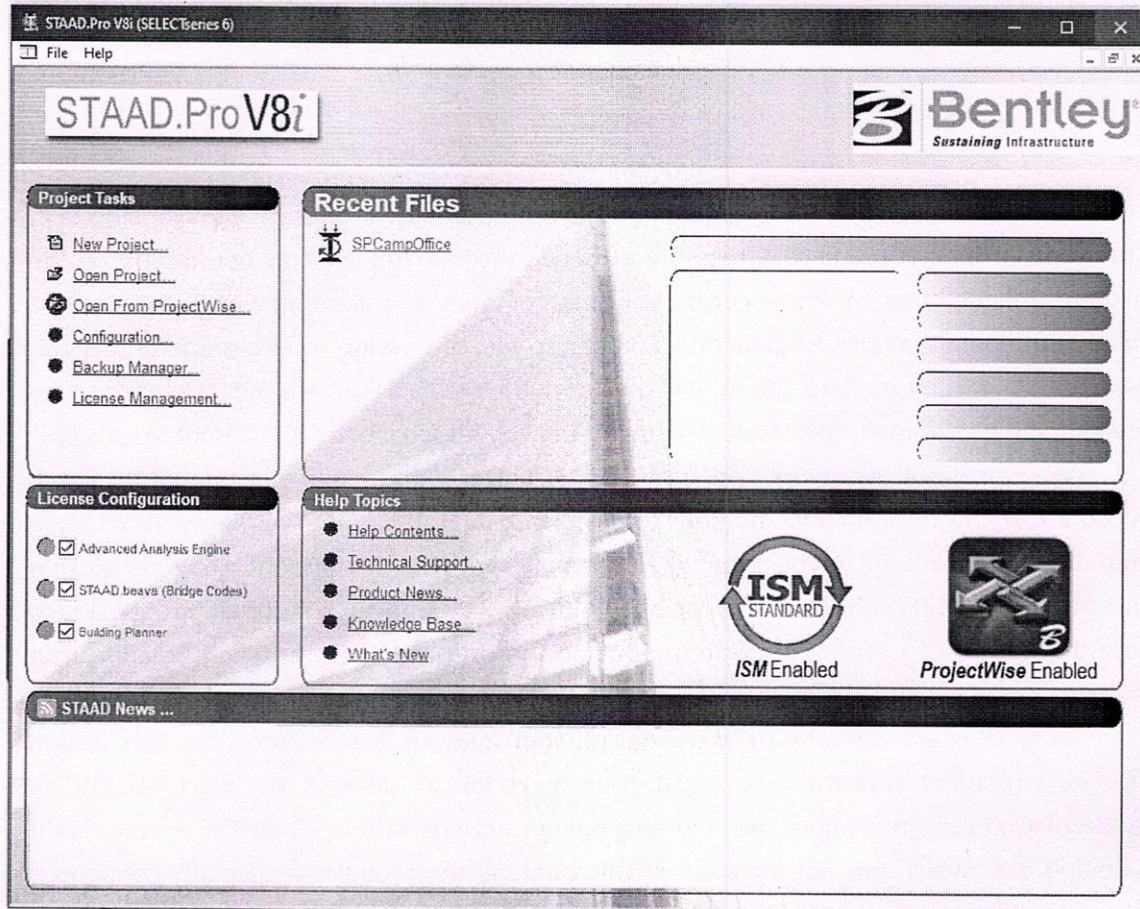
STAAD is a software used to design and analyse a structure. We can design different structures following upto 90 country codes of designs of which IS (Indian Standard) Code is one. There are different design options in the Staad like Piping, RAM modelling etc., which are not included in this book as they require a specially configured license.

As mentioned earlier this book deals with step by step procedure to be followed in modelling the structure and making operations required to complete the analysis of a structure and acquire the design of the structure. The detailed explanation with the examples start from the next chapter i.e, Chapter 2.

In this chapter we will take a brief on the working environment tools of staad. Before we play with staad we need to understand where we can find certain operations from the menu. First let us know how the welcome window or landing window of the staad appears as soon as we run it and what are the sub windows available and where do they take us.

1. Where do we start with STAAD

As soon as we run the staad program on windows the landing window shows us different sub windows as shown in the image below.



You can see five tabs/sub-windows in the welcome window i.e., Project Tasks, Recent Files, License Configuration, Help Topics and STAAD News. In the **Recent Files** Tab you can access your recent projects which you last completed or which you left without completing. **License Configuration** Tab shows the configuration of your license type that you are working on.

Help Topics is the tab where you can get help or technical support from STAAD official helplines or it is the place where you can access the base knowledge of STAAD from STAAD.Pro official Blog. **STAAD News** is the tab where you can get latest updates from STAAD, about the bugs clearance or software updates or knowledge sharing of new options that are included in newer versions of STAAD.

In Project Tasks one can create new projects or open existing projects or even configure projects.

1.1. Creating or Opening a Project

Project Tasks → **New Project** : This is used to create a new project that you would like to work on. For instance, if you are joining to design a G+3 Building then that is your project you have to create. You need to start with creating a new project if you are working on some project for the first time.

Project Tasks → Open Project : If you have to access a project which is already created and partially completed/ to watch the project as a reference then you can open the pre existing project with the **Open Project** option. This option is most useful when you are accessing a file which is not created on your computer or when you have to access an old project for reference purposes. As we already mentioned, we can access our recent files from the **Recent Files** window on the Welcome screen.

1.2. Configuration

From the name itself it is clear that on clicking this we get the configuration settings of the STAAD. On clicking the Configuration link we get the different tabs for setting various configurations, as shown in the snapshot, that are essential to complete our project.

The Tabs are :

Working Directory → where we can browse a location to process for our working project.

News Channel → here we can set the permissions of what related news you would like to hear from the STAAD News tab.

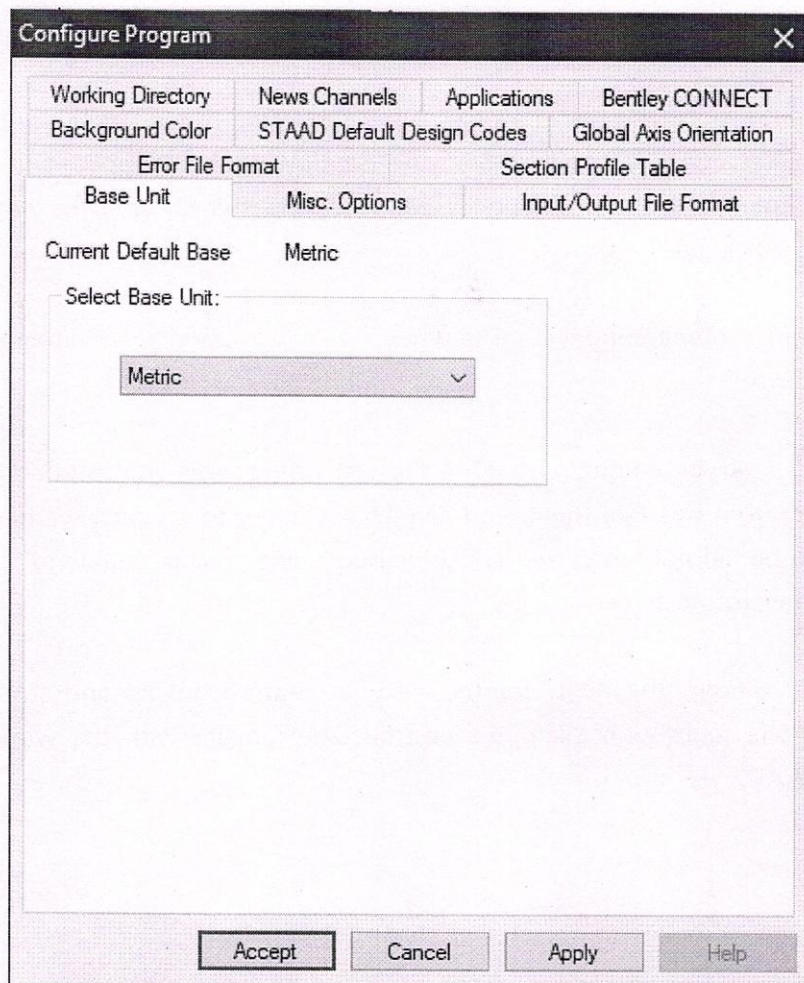
Bentley Connect → it is the environment where we can work with our team at a time.

Base Unit → You can select base units of STAAD for your project.

Input/Output File

Formats → as the name implies you can apply the formats(update the file types or define it) for your project input & output files.

Error File Format → on analysing a structure we get certain errors and some warnings, here we can set limits of maximum Error log.



Section Profile Table → For designing steel we need to access the section tables, every country has different tables we will select Indian Tables or TATA Structures depending on our project and client.

Background Colour → we can keep the background of our working space black or white depending on the time of our work or our mood.

STAAD Default Design Codes → This is the most important thing to note, the **default design codes** in the STAAD after your installation will be **American codes** so we need to go and change it to our Indian Standards or we can select Indian codes at the time of designing the project. We suggest making our codes as default to save our time during design.

Global Axis Orientation → Here we can change the orientation of the axis, actually we can turn the vertical axis to be Y-axis or Z-axis, most of the members prefer Y-axis to be vertical.

Apart from those there are two other tabs. One of them is **Miscellaneous options** in which we can access things like removing Bentley logo from report and the other is **Applications** where you can access Legacy STAAD Editor which was the only tool to enter input of STAAD in past versions.

License Management Tool is where we can know the activation status of our STAAD Pro License.

If you carefully observe the welcome screen you can find a file option in the menu bar. From this File menu you can access every tool which we have discussed so far. This will be helpful when there is some bug in and you are unable to get the above windows on the welcome screen.

From the next chapter we will create a project and start knowing the usage of various tools with examples and become familiar with the working environment of the STAAD.

Chapter 2 | Accessing Work Space

In the previous chapter we have already come across opening a new project. Now let us look at various steps that we have to complete before entering the work space. The first step starts with a model. As soon as we click on New Project, a pop-up window will

appear with the name **New Model**. From here modelling of our project structure begins. The pop-up window is shown in the below snapshot.

New Model

Space
 Plane
 Floor
 Truss

File Name: Structure1

Location: D:\Infrastructure\VBV202107\27001 ...

A SPACE structure, which is a three-dimensional framed structure with loads applied in any plane, is the most general.

Length Units
 Inch Decimeter
 Foot Meter
 Millimeter Kilometer
 Centimeter

Force Units
 Pound Newton
 KiloPound DecaNewton
 Kilogram KiloNewton
 Metric Ton MegaNewton

< Back Next > Cancel Help

We will find four checkboxes: Space, Plane, Floor and Truss. We have to select one of them to start modelling our structure. It depends on our project contents and the expected output. If we have to design a building then loads will act from all directions which means that it is in a space. Hence, we have to select the **Space** option.

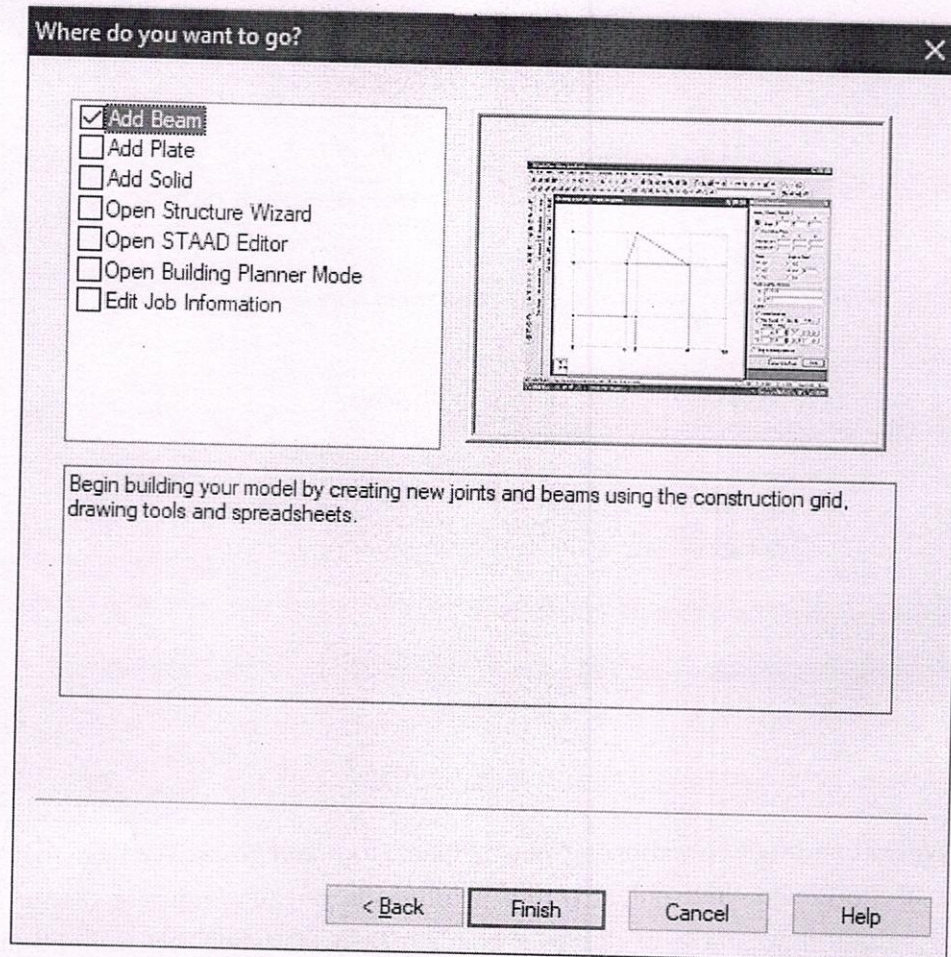
If you are modeling a **Plane** then it means it is a 2-D modelling in which the loads act in the same plane. **Floor** is selected when you are designing such a structure that there are no horizontal loads or displacements and Moment about vertical axis is restrained.

When your structure has all the members which are either subjected to tension or compression but not bending then we opt for **Truss**, as we all know that a truss will have only axial forces in members.

Beside those options we can find options to name our project and select a location to save our project which will be used in future to access. Below these you will find various units for Length and Force. You need to select one from each, you can select any unit system that you are familiar with. As an Engineer we are familiar with calculating forces and everything in meters & KiloNewtons. You can also use a mix unit system like Foot in

length and KiloNewtons in force but you need to keep in mind that the results you obtain will be the same units you opt now and should be confused by mistaking them with meters.

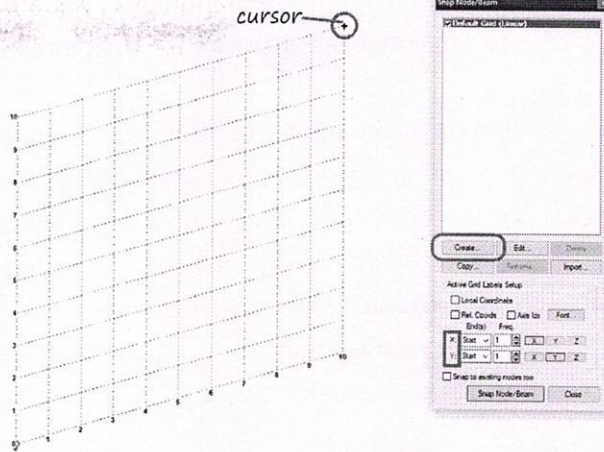
After selecting all the required options for our project we need to proceed further by clicking **Next**. Then a new window will appear asking where we want to go? The window is shown in the below snapshot.



Here we are able to see different ways from where we can start building our model.

2.1. Add Beam

ADD BEAM will take us to a snap node window where we can create geometry of our structure by adding beams. You can add beams by using the cursor and selecting the start and end nodes in the graph displayed as shown in the snapshot below.



By default Snap Node will be in linear mode which means we can model quadrilateral models such as building plans and the default plane will be XY Plane as shown in below snapshot.

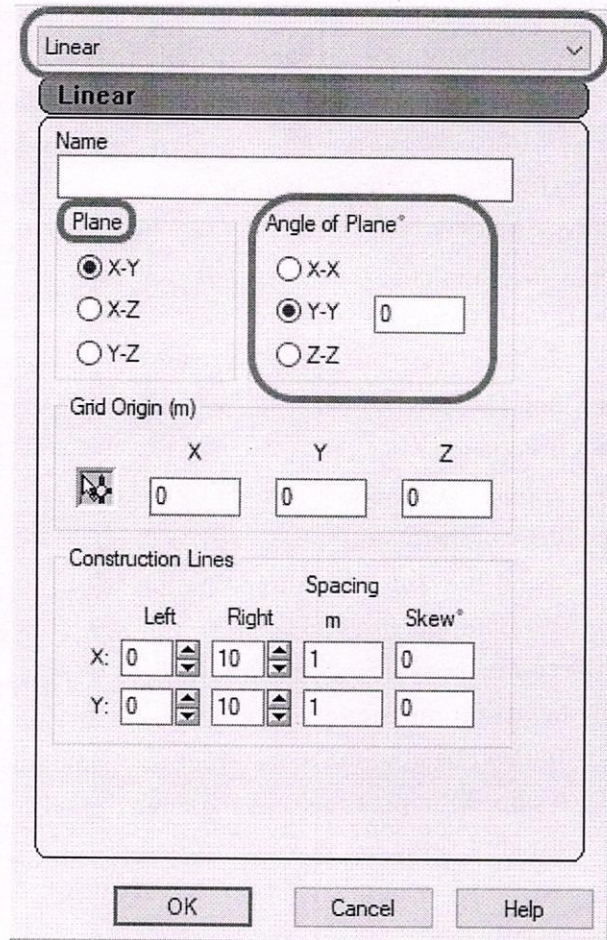
If you are comfortable working in the XY plane then you can create the XY plane section (please note that the Y-axis is vertical in my workspace) of your Model and then can be translated along the Z-Axis to complete our 3D model project. But Practically it is not preferred to use the elevation section of a building to start rather it will be easier to start by drawing the plan of the building or model we need to build and analyse. So we need to change the snap node plane to the XZ Plane which is the horizontal plane for the axis in our workspace.

You can change the mode of the model to **Radial** or **Irregular** and change the plane to whichever plane we need to work on by clicking on the option **Create** in Snap Node Beam Window.

As you can see you will get the pop-up window on clicking the Create option. At the top of all you can change the type of snap node you need like Linear, Radial and Irregular.

When should we use radial and irregular?

Radial, as you guess, is for creating circular models such as Circular Tanks, Stadiums, etc., irregular mode can



be used if the models are not rectangular or square. We may come up with irregular plots where we need to construct structure for such options we use irregular snap node mode.

Coming to the changing of plane you can find in the snapshot that there is an option to select the plane and the angle relation of the plane with a certain axis (this is used for sloped areas like hills or valleys where we need to construct the structure on a sloped surface). You can change the spacing of the snap node according to the size of the model you are building. Before doing all these changes don't forget to name the variant you are creating and then on finishing your settings click **OK** you can see the change of the plane and the mode on your screen.

2.2. Structure Wizard

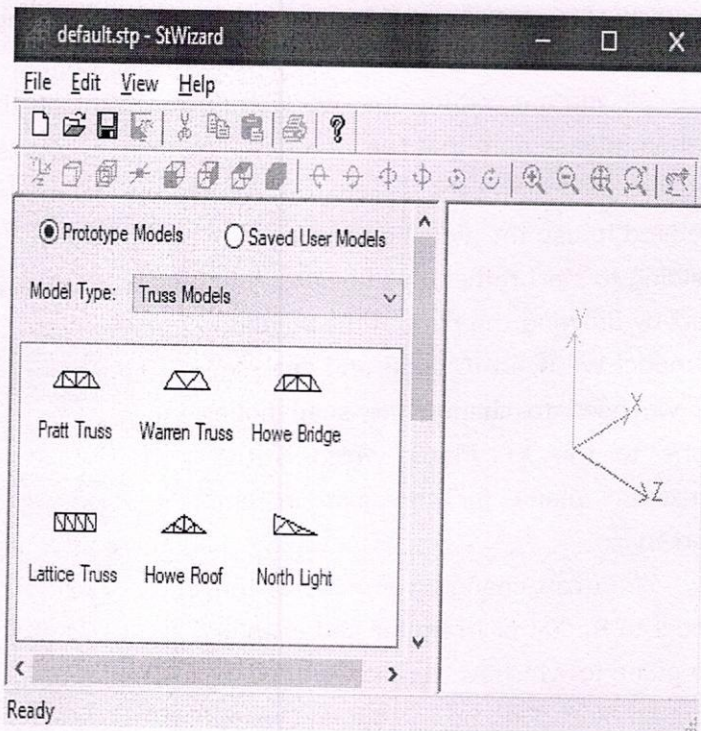
As the name implies, a structure wizard is something that has magical powers and makes your structure modelling simple. As you click on **Finish** after selecting structure wizard, you will be taken to workspace with a pop-up window of structure wizard where you can become a famous wizard like Harry Potter,

Here you can find different prototype models:

- Truss Models
- Frame Models
- Surface/Plate Models
- Solid Models
- Composite Models
- Import CAD Models
- VBA - Macro Models

Using the above prototype models we can create simple structures quickly like we can create different trusses as shown in above snapshot. For Instance let us assume we need to create a bay frame then follow below steps:

1. Select **Frame models** in prototype models dropdown.
2. You will be able to see different frame models. Double click on the **Bay frame**.
3. A pop-up appears asking the inputs of length of total span and the number of bays required along the three directions.



window asking where to paste the model on the workspace. Enter the coordinates where you would like to paste the model and your structure will be transferred successfully to the workspace from where we can do further process of analysing the structure followed by designing.

This is just a Bay frame example, other structures also follow the same procedure but depending on their type the input data of model building may differ.

2.3. STAAD Editor

STAAD Editor will take you to the Input editor where we can write the entire modelling in the form of coding. This was the only way to use STAAD in the past but later to erase the use of STAAD all tools were developed to draft the model with cursor so that the staad will take the input as you model it on the workspace.

Using this is far more time killing part but we will know what is happening in the backstage of staad while we are playing cursor on the front end.

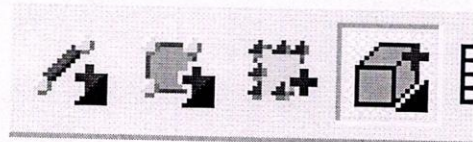
2.4. Add Plate & Add Solid

Add Plate/ Add Solid Options work the same way as the **Add Beam** but the only thing that differs is in **Add Plate** a four noded cursor appears to draw plate and in **Add Solid** a eight noded cursor appears to draw solid where as we had two noded cursor in **Add Beam**.

First Icon in snapshot above is **Add Beam** Cursor

Second Icon is **Add Plate** cursor

Fourth Icon is **Add Solid** Cursor where Third cursor is **Add Surface** Cursor.

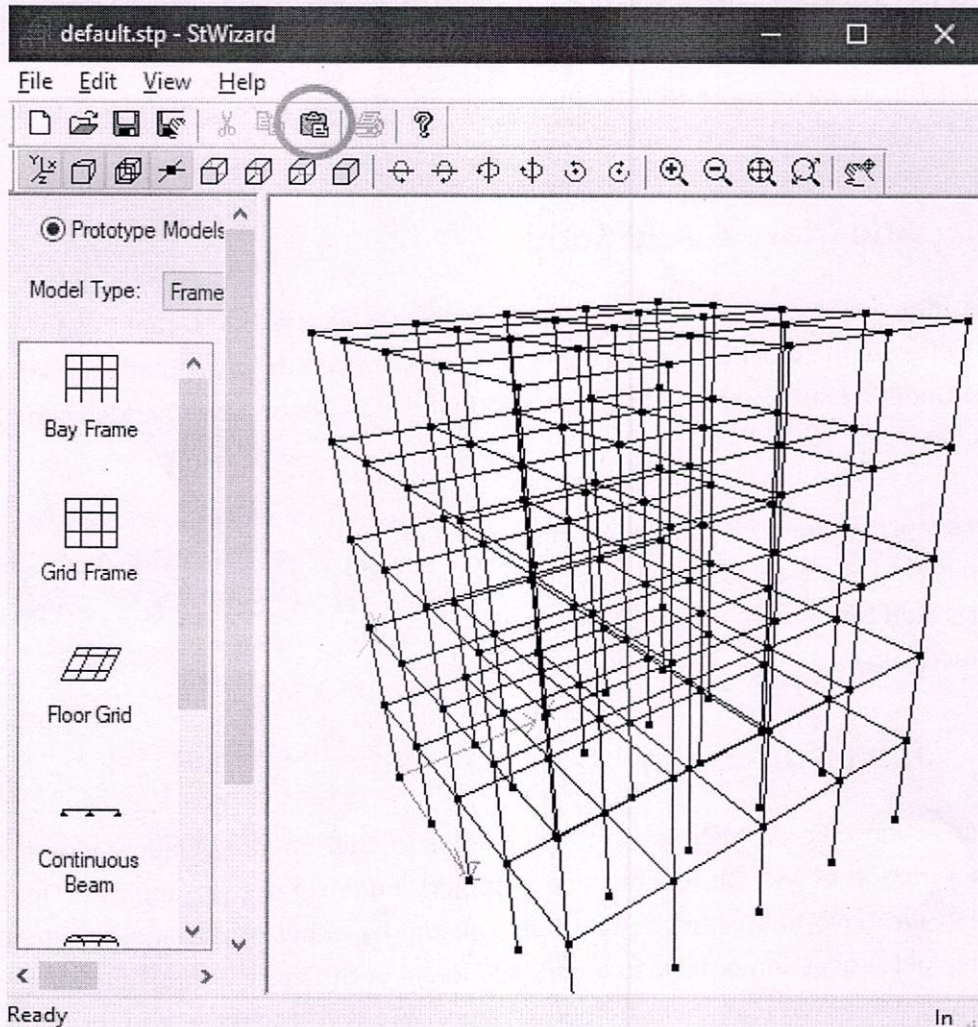
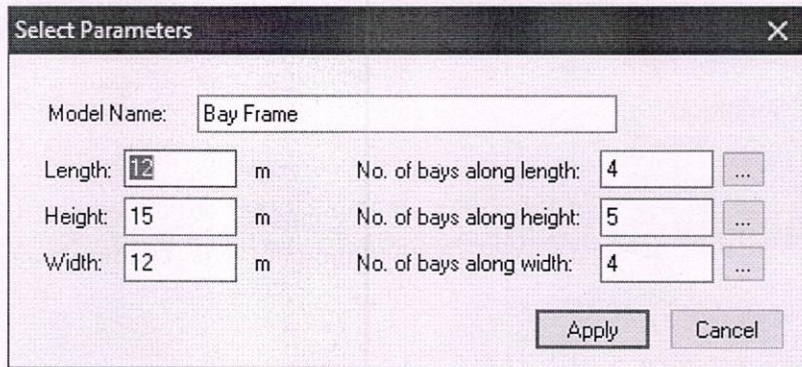


2.5. Job Information

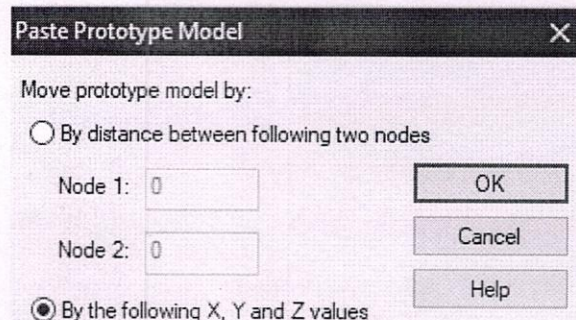
On selecting Edit Job Information it will take us to edit Job Info Window where we can enter description of the Job, Client, type of project, Engineer details, approver Details etc., and then we have to start modelling the structure by either of the above methods. Here you may get a question of how to access add Beam or Structure wizard after entering workspace? Yes we can access them from workspace. We will discuss that in the coming chapter 3, Modelling Tools.

As you can see we entered a 12m X 12m plot with 5 storeys with 4 bays on each side. On applying the required lengths and bays a model will be deployed on the structure wizard window.

But we need to have that model on the workspace of modelling to continue on applying properties, loads and design to the structure. So we need to transfer that structure model to the STAAD by clicking the transfer icon on the menu shown in the snapshot below.



On choosing transfer a prompt window will appear asking confirmation to transfer, click Yes and you will land on a





K.S.R.M. COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

▲ An ISO 14001:2004 & 9001: 2015 Certified Institution



Certification Course on Design of Multi- Storeyed building using STAAD Pro.

Course Instructor:

Dr. P. Kishore Kumar Reddy,
Associate Professor,
Civil Engineering Dept.,
KSRMCE

History of Staad Pro Software

- STAAD stands for **ST**ructural **A**nalysis **A**nd **D**esign – One of first commercial software in world
- STAAD-III for DOS – non-graphical software
- REI & QSE merged –Analysis engine + Interface = STAAD PRO for windows.
- Sharing capabilities with other major software like AutoCAD, and MS Excel
- Reports of the inputs and the outputs
- Concrete and steel design

Introduction of STAAD.Pro

- STAAD.Pro® is one of the most widely-used software for developing and examining the designs of various structures, such as petrochemical plants, tunnels, bridges etc.
- STAAD.Pro® v8i, the latest version, permits civil engineering individuals to analyze structural designs in terms of features like force, load, displacements etc.
- Multisoft Virtual Academy STAAD.Pro® v8i online training builds expertise in using the software at a professional level in domains, including construction companies, government agencies, architecture firms etc.

Understand STAAD Pro way of doing the job

- One of the most famous analysis methods to analyze continuous beams is "Moment Distribution Method", which is based on the concept of transferring the loads on the beams to the supports at their ends.
- Each support will take portion of the load according to its K ; K is the stiffness factor, which equals EI/L . As you can see E , and L is constant per span, the only variable here is I ; moment of inertia. I depends on the cross section of the member. So, if you want to use this analysis method, you have to assume a cross section for the spans of the continuous beam.
- If you want to use this method to analyze a simple frame, it will work, but it will not be simple, and if you want to make the frame a little bit more complicated (simple 3D frame) this method falls short to accomplish the same mission.
- Hence, a new more sophisticated method emerged, which depends fully on matrices, this method called "Stiffness Matrix Method", the main formula of this method is:
 - $[P] = [K] \times [\Delta]$
 - $[P]$ is the force matrix = Dead Load, Live Load, Wind Load, etc
 - $[K]$ is the stiffness factor matrix. = $K=EI/L$
 - $[\Delta]$ is the displacement matrix

Types of Structures

- A STRUCTURE can be defined as an assemblage of elements. STAAD is capable of analyzing and designing structures consisting of both frame, and Finite elements. Almost any type of structure can be analyzed by STAAD.

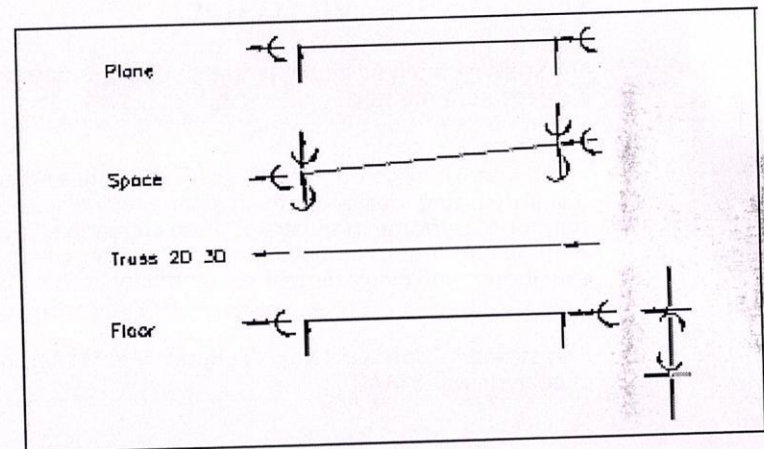
- Frame elements – Beam elements – 2 nodes
- Finite elements – 1.) Plate – 3 or 4 nodes
2.) Solid – 4 to 8 nodes

Remember for staad -

Node becomes Joint *it has a number and xyz coordinates*

Beam becomes Member *it has a number and nodes at its ends*

Plate becomes Element *it has a number and node at its corners*



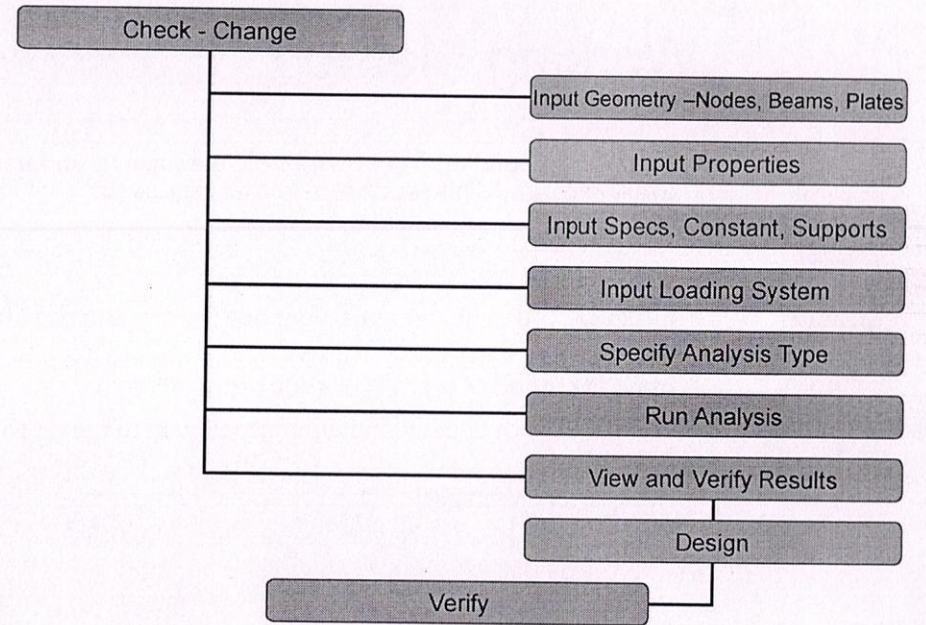
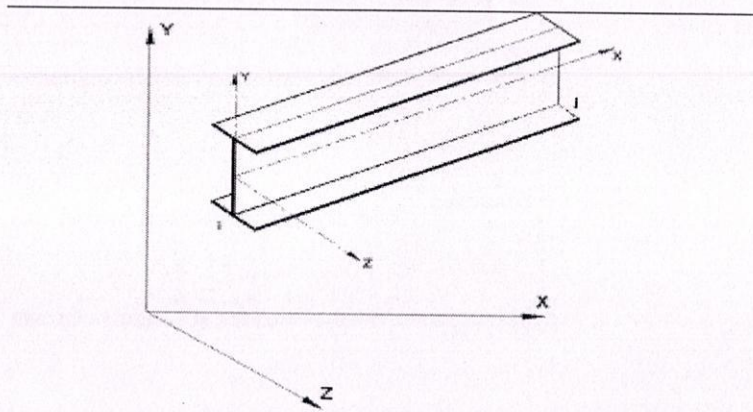
Stiffness Method

- The stiffness analysis implemented in STAAD is based on the matrix displacement method.
- In the matrix analysis of structures by the displacement method, the structure is first idealized into an assembly of discrete structural components (frame members or finite elements). Each component has an assumed form of displacement in a manner which satisfies the force equilibrium and displacement compatibility at the joints
- First structural software which adopted Matrix Methods for the method of analysis was STAAD
- Methods used :- Modified Cholesky's method (Decomposition)
Most efficient accurate and time saving method also well suited for Gaussian Elimination Process

Continue...

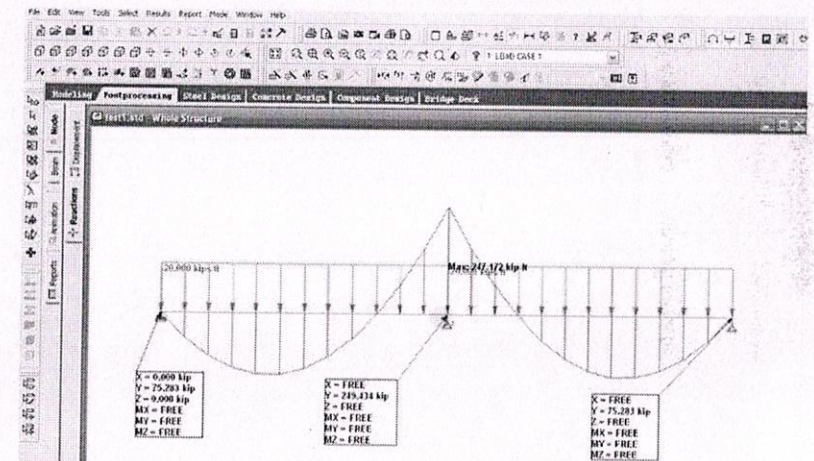
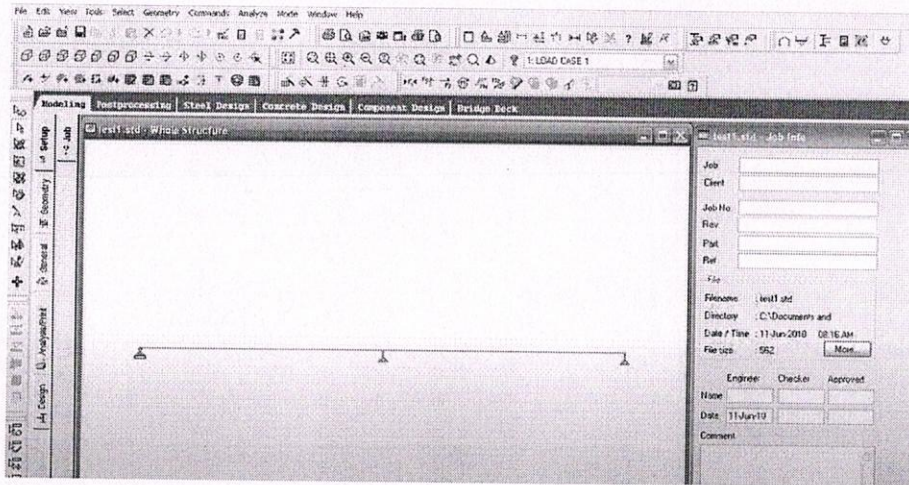
- A **TRUSS** structure consists of truss members which can have only axial member forces and no bending in the members
- A **PLANE** structure is bound by a global X-Y coordinate system with loads in the same plane
- A **SPACE** structure, which is a three dimensional framed structure with loads applied in any plane, is the most general.
- A **FLOOR** structure is a two or three dimensional structure having no horizontal (global X or Z) movement of the structure [FX, FZ & MY are restrained at every joint]. The floor framing (in global X-Z plane) of a building is an ideal example of a FLOOR structure. Columns can also be modeled with the floor in a FLOOR structure as long as the structure has no horizontal loading. If there is any horizontal load, it must be analyzed as a SPACE structure.

Coordinate Systems

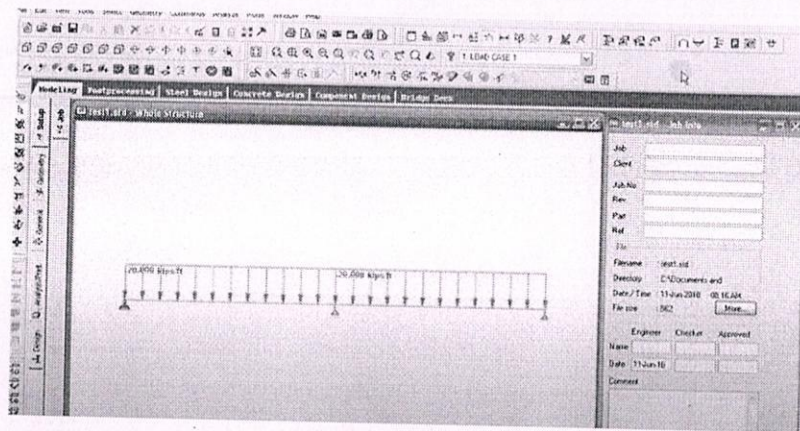


SFD and BMD using STAAD Pro.

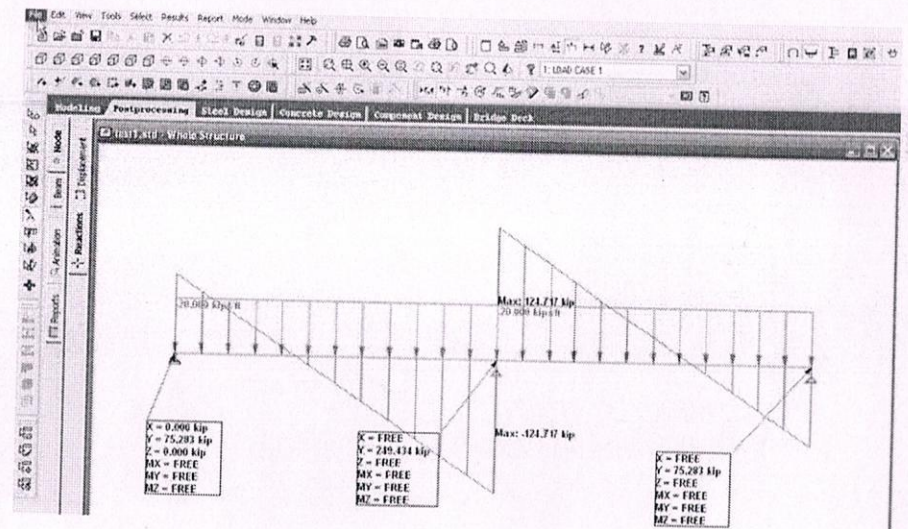
Cond.



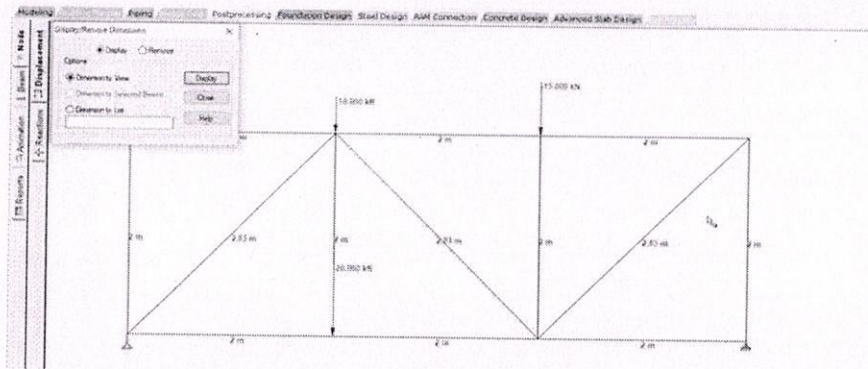
Cond.



Cond.

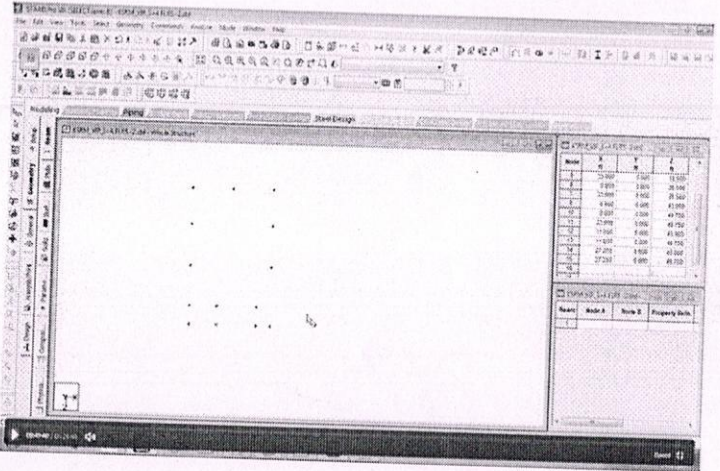
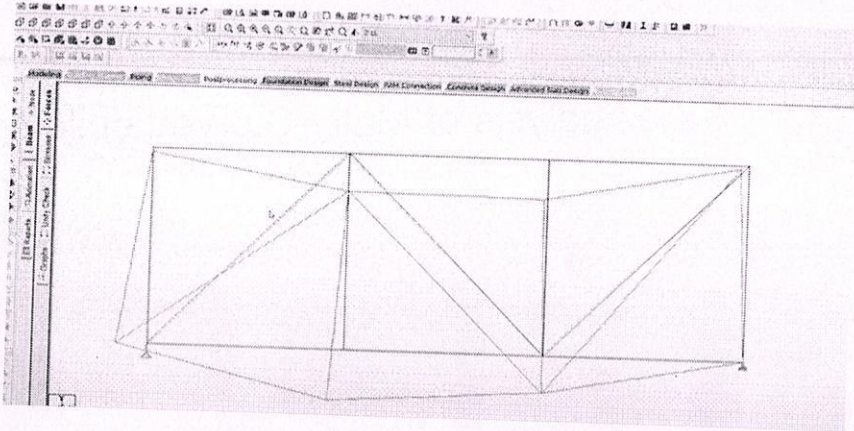


Analysis of trusses using STAAD Pro.

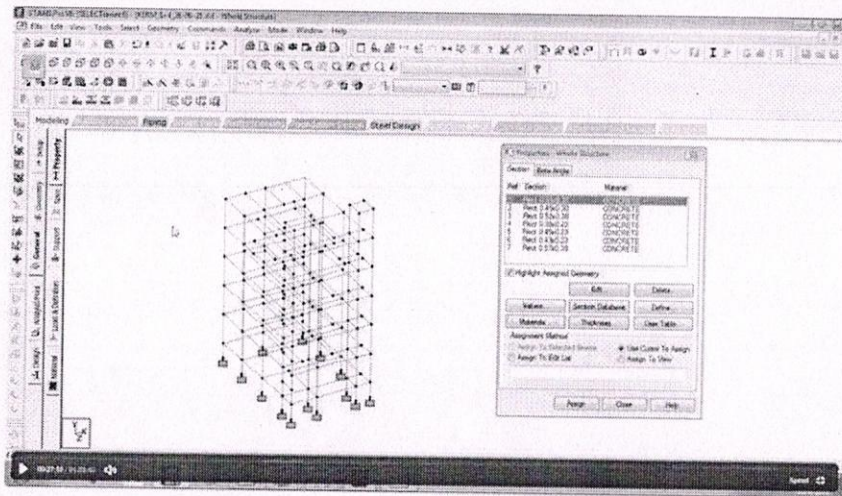


Analysis of Multy-Storyed building using STAAD Pro.

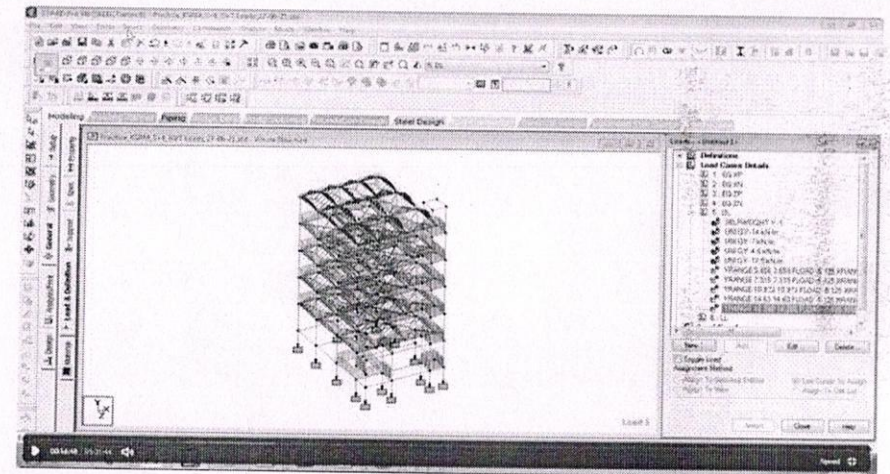
Coordinates of framed structure



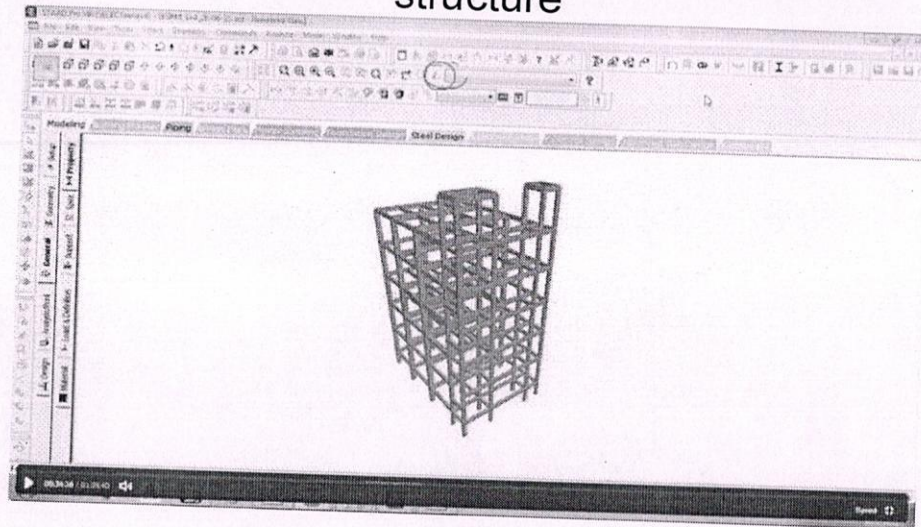
Beam and column elements of framed structure



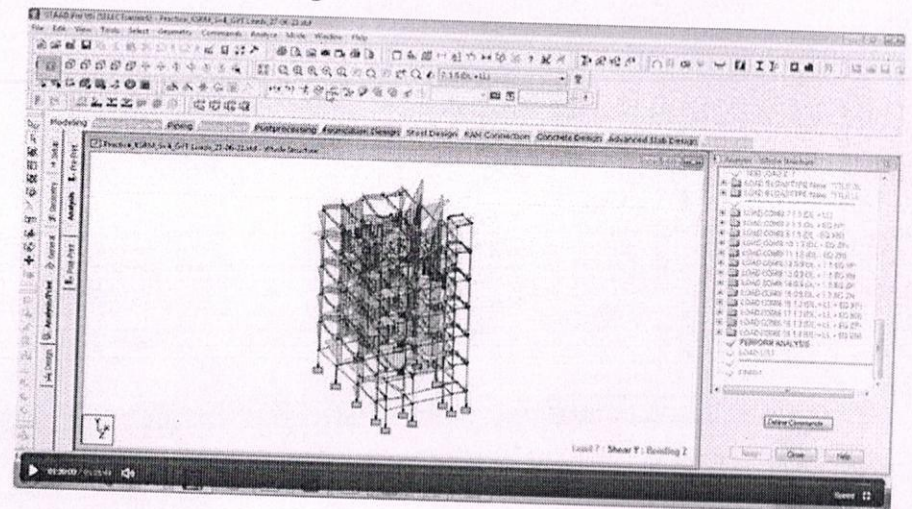
Forces on members



Member with orientation and size of framed structure



Internal reactions in members of framed structures





K.S.R.M College of Engineering

(AUTONOMOUS)

KADAPA, ANDHRA PRADESH, INDIA-516003

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE OF COURSE COMPLETION

This certificate is presented to

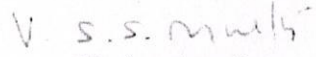
Himaja K. (Reg. No. 179Y1A0136), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "**Design of multi-storeyed building using STAAD Pro.**" offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 26/04/21 to 11/05/21

Course Instructor:
Dr. P. Kishore Kumar Reddy,
Associate Professor, CE, KSRMCE-Kadapa


Coordinator


Head of the Department


Principal



K.S.R.M College of Engineering

(AUTONOMOUS)

KADAPA, ANDHRA PRADESH, INDIA-516003

DEPARTMENT OF CIVIL ENGINEERING

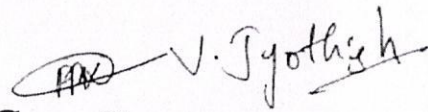
CERTIFICATE OF COURSE COMPLETION

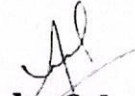
This certificate is presented to

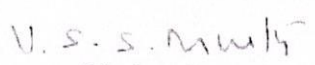
Manjunatha M. (Reg. No. 179Y1A0155), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "Design of multi-storeyed building using STAAD Pro." offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 26/04/21 to 11/05/21

Course Instructor:
Dr. P. Kishore Kumar Reddy,
Associate Professor, CE, KSRMCE-Kadapa


Coordinator


Head of the Department


Principal



K.S.R.M College of Engineering

(AUTONOMOUS)

KADAPA, ANDHRA PRADESH, INDIA-516003

DEPARTMENT OF CIVIL ENGINEERING

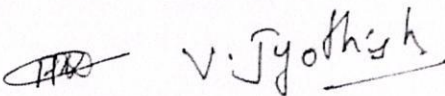
CERTIFICATE OF COURSE COMPLETION

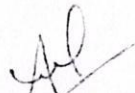
This certificate is presented to

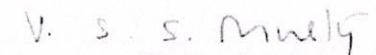
Nikitha J. (Reg. No. 189Y5A0127), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "Design of multi-storeyed building using STAAD Pro." offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 26/04/21 to 11/05/21

Course Instructor:
Dr. P. Kishore Kumar Reddy,
Associate Professor, CE, KSRMCE-Kadapa


Coordinator


Head of the Department


Principal



K.S.R.M College of Engineering

(AUTONOMOUS)

KADAPA, ANDHRA PRADESH, INDIA-516003

DEPARTMENT OF CIVIL ENGINEERING

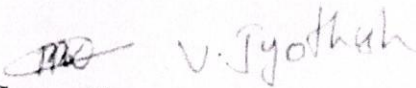
CERTIFICATE OF COURSE COMPLETION


This certificate is presented to

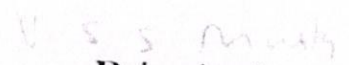
Vamsi T. (Reg. No. 189Y5A0173), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "Design of multi-storeyed building using STAAD Pro." offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 26/04/21 to 11/05/21

Course Instructor:
Dr. P. Kishore Kumar Reddy,
Associate Professor, CE, KSRMCE-Kadapa


Coordinator


Head of the Department


Principal

Department of Civil Engineering

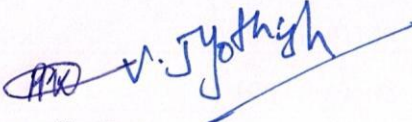
Feedback of students on Certification Course on "Design of Multi-Storeyed building using STAAD Pro."


Sl. No.	Name of The Student	Reg. No.	Is the course content met your expectations?	Are the lecture hours sufficient to cover the topics?	Rate the course instructor	Is this course useful for your Carrier?	Rate the entire course?
1	Sethaswi Bedudoori	179Y1A0105	Yes	Yes	5	Yes	5
2	Nikhil Kumar Reddy Bhavanasi	179Y1A0106	Yes	Yes	5	Yes	5
3	Geetha Bhuma	179Y1A0107	Yes	Yes	4	Yes	4
4	Venkatesh Naik Bukke	179Y1A0113	Yes	Yes	4	Yes	5
5	Pallavi Chatta	179Y1A0115	Yes	Yes	4	May be	4
6	Zaheer Dade	179Y1A0119	Yes	Yes	5	Yes	5
7	Jayachandra Derangula	179Y1A0122	Yes	Yes	5	Yes	5
8	Siddaiah Dollu	179Y1A0123	Yes	Yes	5	Yes	5
9	Suresh Gowd Ediga	179Y1A0124	Yes	Yes	5	Yes	5
10	Ashok Kumar Galeti	179Y1A0126	Yes	Yes	5	May be	5
11	Pullaiah Gokula	179Y1A0129	Yes	Yes	4	May be	5
12	Ramamanohar Reddy Gollapalle	179Y1A0130	Yes	Yes	5	Yes	5
13	Dharani Jonnavaram	179Y1A0133	Yes	Yes	5	Yes	5
14	Manasa Juturu	179Y1A0134	Yes	Yes	5	Yes	5
15	Himaja Kancharla	179Y1A0136	Yes	Yes	4	Yes	5
16	Vivekananda Reddy Kota	179Y1A0139	Yes	Yes	5	Yes	5

17	Madhu Kiran Reddy Bannuru	179Y1A0146	Yes	Yes	3	Yes	4
18	Thimmappa Madiga	179Y1A0147	Yes	Yes	5	Yes	5
19	Manjunatha Muttalahgari	179Y1A0155	Yes	Yes	5	Yes	5
20	Prathima Nagooru	179Y1A0157	Yes	Yes	5	May be	5
21	Vijaya Kumari Nalla	179Y1A0158	Yes	Yes	5	May be	5
22	Venkata Sunil Kumar Reddy P	179Y1A0166	Yes	Yes	5	Yes	5
23	Bhanu Prakash Peddaalankolla	179Y1A0174	Yes	Yes	5	Yes	5
24	Vinodh Kumar Reddy Pokala	179Y1A0178	Yes	Yes	5	Yes	5
25	Susma Saraballa	179Y1A0182	Yes	Yes	5	Yes	5
26	Gaffar Sayyad	179Y1A0183	Yes	Yes	5	Yes	5
27	Abdul Rehaman Shaik	179Y1A0184	Yes	Yes	5	Yes	5
28	Surya Thammisetty	179Y1A0197	Yes	Yes	4	Yes	5
29	Rajesh Thotakanama	179Y1A0198	Yes	Yes	4	May be	4
30	Maheswari Undela	179Y1A01A1	Yes	Yes	5	Yes	5
31	Siva Kumar Upparapalli	179Y1A01A2	Yes	Yes	5	Yes	5
32	Keerthana Vodiveeti	179Y1A01A5	Yes	Yes	5	Yes	5
33	Rekha Devi Yarasani	179Y1A01A6	Yes	Yes	5	Yes	5
34	Lokesh Yarragolla	179Y1A01A7	Yes	Yes	5	Yes	5
35	Venkata Lakshmi Yarraguntla	179Y1A01A8	Yes	Yes	5	Yes	5
36	Siva Gangadhar Alavalapadu	189Y5A0102	Yes	Yes	5	Yes	5
			Yes	Yes	3	May be	4

37	Dharani Kamalakara Rao Appalarajugari	189Y5A0104	Yes	Yes	5	Yes	5
38	Niranjan Attinjery	189Y5A0106	Yes	Yes	5	Yes	5
39	Suresh Banka	189Y5A0107	Yes	Yes	5	May be	5
40	Srinatha Reddy Bhumireddy	189Y5A0109	Yes	Yes	4	Yes	4
41	Purushothamreddy Bijivemula	189Y5A0110	Yes	Yes	5	Yes	5
42	Kiran Kumar Bolleddu	189Y5A0113	Yes	Yes	5	Yes	5
43	Swetha Damsetty	189Y5A0120	Yes	Yes	5	Yes	5
44	Shireesha Guramkonda	189Y5A0126	Yes	Yes	5	Yes	5
45	Nikitha Jaladi	189Y5A0127	Yes	Yes	4	Yes	4
46	Venkata Subbaiah Janapati	189Y5A0128	Yes	Yes	5	Yes	5
47	Nethajee Reddy Jerripothula	189Y5A0129	Yes	Yes	5	Yes	5
48	Yaswanth Reddy Kambham	189Y5A0132	Yes	Yes	5	May be	5
49	Sree Hari Reddy Katthi	189Y5A0134	Yes	Yes	5	May be	5
50	Nagesh Kolliboina	189Y5A0135	Yes	Yes	5	Yes	5
51	Prasanth Kumar Kotturu	189Y5A0138	Yes	Yes	5	Yes	5
52	Ganga Maheswara Reddy Kudumula	189Y5A0139	Yes	Yes	5	Yes	5
53	Suresh Kuruva	189Y5A0140	Yes	Yes	5	Yes	5
54	Venkata Ramana Reddy Nimmakayala	189Y5A0146	Yes	Yes	5	Yes	5
55	Abilash Reddy Sajjala	189Y5A0159	Yes	Yes	4	Yes	5

56	Naveen Kumar Sepuri	189Y5A0162	Yes	Yes	4	May be	4
57	Sham Babu Thallapaka	189Y5A0169	Yes	Yes	5	Yes	5
58	Chandra Kanth Thatamsetty	189Y5A0170	Yes	Yes	5	Yes	5
59	Divya Thonduru	189Y5A0171	Yes	Yes	5	Yes	5
60	Parameswara Reddy Thummala	189Y5A0172	Yes	Yes	5	Yes	5
61	Vamsi Tudumu	189Y5A0173	Yes	Yes	5	Yes	5


Coordinator


HoD-Civil Engg.
Head
Department of Civil Engineering
K.S.R.M. College of Engineering
(Autonomous)
KADAPA 516 003. (A.P.)