MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
Madanapalle-517325, Annamayya Dist., Andhra Pradesh, India.
MITS DEEMED TO BE **UNIVERSITY**
(Declared under section 3 of UGC Act, 1956 by Govt. of India - MoE)
www.mits.ac.in
Estd: 1998

Report on

A Five-day Skill Development Training Program

on
"Domain Specific Workshop on Structural Analysis and Design Using Staad.Pro."

Organized by

Skill Development Cell

Date: 29.12.2025 - 03.01.2026

Venue: CBT Lab (LB :019)

MITS
MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(Deemed to be University under section 3 of UGC Act, 1956)
Madanapalle-517325, Andhra Pradesh, India.
www.mits.ac.in

ASCE STUDENT CHAPTER Madanapalle Institute of Technology & Science

A Six-Day Offline Skill Development Program
on
Domain Specific Workshop on Structural Analysis and Design Using Staad.Pro.
Organized by Department of Civil Engineering
&
in association with Skill Development Cell & ASCE Student Chapter, MITS

Skill AP APSSDC

29.12.25 to 03.01.26

Resource Person
Mr. Kumar Mayank Priyadarshi
Aylin Technologies Private Limited, Delhi.

CBT LAB (LB-019)

Chief Patron	**Patrons**		**Program Chair**	**Co-Chairs**	
Dr . N. Vijaya Bhaskar Choudary	Shri. N. Dwarakanath	Mrs. Keerthi Nadella	Dr. C. Yuvaraj	Dr. D. Pradeep Kumar	Dr. P. Ramanathan
Founder & Chancellor	Pro Chancellor	Executive Director	Vice Chancellor (I/c)	Registrar (I/c)	Principal
Convenor	**Co-Convenors**		**SDC Coordinator**	**Event Coordinator**	**Event Co-Coordinator**
Dr. Bremananth Ramachandran	Dr. Dipankar Roy	Dr. Vijayakumar. N	Dr. V B Thurai Raaj	Mrs. Kandukuri anitha	Mr. P. Sabarishkumar
Dean Training & Skill Development	Dean School of Engineering	Asst. Prof. & Head - CE	Asst. Prof., / EEE, SPOC - APSSDC	Asst. Prof., / CE	Asst. Prof., / CE

Submitted by: Dr. V.B. Thurai Raaj, Assistant Professor, Department of EEE & SPOC-APSSDC T-SDI, MITS, Madanapalle.

Co-ordinated by: Mrs. Kandukuri Anitha, Assistant Professor, Department of Civil Engineering.

Co-coordinated by: Mr. P. Sabarishkumar, Assistant Professor, Department of Civil Engineering.

Attendance: 62 students+ 2 Faculty

Resource Person: Mr. Kumar Mayank Priyadarshi, Aylin Technologies Private Limited, Delhi.

The Skill Development Cell, Madanapalle Institute of Technology and Science, Madanapalle, Andhra Pradesh, in association with the Department of Civil Engineering, MITS, Madanapalle, organized a six-day skill development program "**Domain Workshop on Structural Analysis and Design by using Staad.Pro**" from December 29, 2025, to January 3, 2026. A total of 62 participants took part in this program, making the event a resounding success.

A summary of the skill development program is as follows:

Mrs. Kandukuri Anitha, Assistant Professor, Department of Civil Engineering, delivered the welcome address of the event. Dr. V. B. Thurai Raaj, Assistant Professor in EEE & SPOC–APSSDC t-SDI , introduced the resource person to the participants. Dr. Dipankar Roy, Professor and Dean – School of Engineering, and Dr. N. Vijayakumar, Assistant Professor & HoD, Mr. P. Sabarishkumar, Assistant Professor participated in the inaugural function.

During his address, **Dr. Dipankar Roy** motivated the students to actively participate and concentrate throughout the six-day training program on Domain Workshop on Structural Analysis and Design by using Staad.Pro . He emphasized the importance of developing practical design skills and understanding modern architectural tools to enhance their professional growth and employability.

Dr. N. Vijayakumar, Assistant Professor & HoD, highlighted the significance of the six-day training program on Structural Analysis and Design using STAAD.Pro**.** He emphasized that such training is essential for modern civil engineers to meet industry requirements. He pointed out the importance of software skills in real-time structural design and analysis. He encouraged students to utilize the program to strengthen their technical competence and career prospects.

Dr. V. B. Thurai Raaj, Assistant Professor in EEE & SPOC–APSSDC t-SDI**,** briefed the participants about the objectives and scope of the six-day training program.

Mrs. Kandukuri Anitha, Assistant Professor, also welcomed the resource person, emphasized the importance of the training, and handed over the session to the resource person.

A total of **62 Third-year students and two faculty members** from the Department of Civil Engineering participated in this six-day hands-on training program.

Training Sessions Overview

The program spanned six days, divided into daily Forenoon and afternoon sessions.

- **Morning Schedule:** 09:10 AM – 12:10 PM
- **Afternoon Schedule:** 1:00 PM – 5:00 PM

DAY 1 [29.12.2025 FN]

The Training session started at 10.00 AM and the following topics were interacted with students in FN Session to update their basic skill sets to meet the corporate requirements.

Introduction to STAAD.Pro
- Overview of STAAD.Pro software and versions
- Applications in real-world structural engineering
- Types of structures analyzed using STAAD
- Workflow: Modelling → Loading → Analysis → Design
- Graphical User Interface (GUI) overview
- File types and project setup • Understanding global axis & coordinate system
- Units and unit consistency
- Introduction to nodes, beams, plates, and supports

Analysis of a RCC Beam
- Idealization of RCC beam in STAAD
- Creating nodes and beam elements
- Assigning material properties (Concrete)
- Defining supports (fixed, pinned)
- Applying point load and uniformly distributed load
- Running analysis
- Understanding bending moment, shear force & deflection
- Interpreting output results and diagrams

DAY 1 [29.12.2025 AN]

The Training session started at 1.30 PM in AN and the following topics mentioned below were learnt by students and the software plans and drawing tools were practiced by them.

Analysis of a 2D Frame

- Difference between beam, frame, and truss
- Modelling a 2D portal frame
- Assigning member properties
- Support conditions for frames
- Applying dead load and live load
- Load case definition
- Performing analysis
- Result interpretation: reactions, moments, shear, axial force
- Common modelling mistakes and corrections

DAY 2 [30.12.2025 FN]

The Training session started at 9.30 AM and the following topics were interacted with students in FN Session to update their basic skill sets to meet the corporate requirements.

Analysis and Design of a 3D Frame

- Introduction to 3D structural behavior
- Creating 3D space frames
- Assigning material and sectional properties
- Defining supports for 3D models
- Load application in X, Y & Z directions
- Performing 3D analysis
- Understanding torsion and spatial force distribution
- Introduction to design parameters (RC design concept)

Using Structure Wizard

- Purpose of Structure Wizard
- Types of predefined structural templates
- Creating trusses using Structure Wizard
- Creating frames and industrial structures
- Importing Structure Wizard models to STAAD
- Modifying generated models
- Advantages of Structure Wizard in real projects

DAY 2 [30.12.2025 AN]

The Training session started at 1.30 PM in AN and the following topics mentioned below were learnt by students and the software plans and drawing tools were practiced by them.

Exploring the STAAD.Pro Tools

- Geometry tools
- Snap & grid settings
- Translational repeat and mirror options
- Renumbering nodes and members
- Check duplicate nodes and beams
- Model verification tools
- Error diagnostics and warnings
- Post-processing tools overview

Moment Releases and Member Offset

- Concept of moment release
- Practical scenarios for moment releases
- Assigning releases at start/end of members
- Member offset concept
- Physical vs analytical model difference
- Application of offsets in beam-column connections
- Effect of releases and offsets on analysis results

DAY 3 [31.12.2025 FN]

The Training session started at 9.30 AM and the following topics were interacted with students in FN Session to update their basic skill sets to meet the corporate requirements.

Reading the Architectural Drawing

- Understanding architectural plans
- Interpreting floor plans, elevations, and sections
- Grid lines and dimensions
- Floor height and level details
- Wall layout and thickness
- Translating architectural drawings into structural model
- Coordination between architect & structural engineer

Modelling of the Building

- Creating grid lines in STAAD
- Modelling columns and beams floor-wise
- Assigning story heights
- Slab idealization concepts
- Modelling staircases and lift cores (conceptual)
- Checking model connectivity
- Best practices for building modelling

DAY 3 [31.12.2025 AN]

The Training session started at 1.30 PM in AN and the following topics mentioned below were learnt by students and the software plans and drawing tools were practiced by them.

Assigning the Section Properties

- Standard vs user-defined sections
- RCC beam and column section definition
- Assigning properties to beams and columns
- Grouping members
- Modifying section sizes
- Practical considerations for section selection
- Verifying section assignments

Introduction to IS 1893 : 2016

- Importance of seismic design
- Seismic zones in India
- Terminology: base shear, importance factor
- Response reduction factor
- Seismic weight calculation
- Introduction to equivalent static method
- Overview of seismic load application in STAAD

DAY 4 [01.01.2026 FN]

The Training session started at 9.30 AM and the following topics were interacted with students in FN Session to update their basic skill sets to meet the corporate requirements.

Introduction to IS 875 (Part 1) – Dead Load

- Types of dead loads
- Unit weights of construction materials
- Dead load components in buildings
- Self-weight consideration in STAAD
- Manual vs automatic load calculation
- Practical examples

Introduction to IS 875 (Part 2) – Live Load

- Types of live loads
- Live load values for different occupancies
- Reduction factors
- Applying live load in STAAD
- Floor load vs member load concept
- Load distribution understanding

DAY 4 [01.01.2026 AN]

The Training session started at 1.30 PM in AN and the following topics mentioned below were learnt by students and the software plans and drawing tools were practiced by them.

Calculation and Application of Wall Load

- Types of walls (brick, block)
- Wall load calculation per meter
- Load transfer mechanism
- Applying wall load on beams
- Line load vs member load
- Practical building examples

Calculation and Application of Floor Load

- Concept of floor load
- Load distribution on beams
- Tributary area method
- Floor load command in STAAD
- Application on rectangular and irregular panels
- Validation of applied loads

DAY 5 [02.01.2026 FN]

The Training session started at 9.30 AM and the following topics were interacted with students in FN Session to update their basic skill sets to meet the corporate requirements.

Introduction to IS 875 (Part 3) – Wind Load

- Basic wind speed map
- Risk coefficient
- Terrain and height factor
- Topography factor
- Wind pressure calculation

- Wind load directions
- Wind load definition in STAAD

Calculation and Application of Wind Load
- Wind load generation in STAAD
- Assigning wind load parameters
- Wind load cases and directions
- Checking wind load output
- Practical considerations for multi-story buildings

DAY 5 [02.01.2026 AN]

The Training session started at 1.30 PM in AN and the following topics mentioned below were learnt by students and the software plans and drawing tools were practiced by them.

Calculation and Application of Seismic Load

- Seismic load parameters in STAAD
- Defining seismic zone, importance factor
- Directional seismic loads
- Seismic load cases
- Checking base shear
- Understanding seismic output results

Making Load Combination

- Importance of load combinations
- Load combinations as per IS codes
- Ultimate and serviceability combinations
- Creating load combinations in STAAD
- Verifying combinations
- Common mistakes in combinations

DAY 6 [03.01.2026 FN]

The Training session started at 9.30 AM and the following topics were interacted with students in FN Session to update their basic skill sets to meet the corporate requirements.

Design of Structural Members

- RCC design philosophy in STAAD
- Beam design parameters
- Column design parameters
- Concrete grade and steel grade
- Design command execution
- Understanding design output
- Interpretation of reinforcement details

DAY 6 [03.01.2026 AN]

The Training session started at 1.30 PM in AN and the following topics mentioned below were learnt by students and the software plans and drawing tools were practiced by them.

Recap Session and Final Assessment

- Complete building model practice
- Load calculation recap
- Model correction and optimization
- Error troubleshooting
- Best modelling practices
- Viva-type discussion
- Industry tips & career guidance
- Q&A and doubt clarification
- Final Assessment

Outcomes of the Event:

After successfully completing the Five-Day Skill Development Training Program on "Architectural Modelling Using Revit", the participants were able to:

- Model real-time RCC buildings in STAAD.Pro
- Apply loads as per IS codes
- Perform analysis and design
- Interpret results confidently
- Be industry-ready for entry-level structural roles

Program Outcomes (POs) Covered:

- **PO1: Engineering Knowledge:** Apply core civil engineering principles in structural analysis and design using STAAD.Pro.

- **PO2: Problem Analysis:** Identify, formulate, and analyze structural problems using appropriate software tools.

- **PO3: Design/Development of Solutions:** Design safe and efficient structural systems as per codal provisions.

- **PO5: Modern Tool Usage:** Use STAAD.Pro and related tools effectively for modeling, analysis, and design.

- **PO9: Individual and Team Work:** Work effectively as an individual and as a member of a team during hands-on sessions.

- **PO10: Communication:** Communicate analysis results and design outputs clearly through reports and discussions.

Vote of Thanks

I take this opportunity to express my heartfelt gratitude to the Management for their permission and financial support to organize this program. My sincere thanks to Dr. Dipankar Roy, Professor and Dean – School of Engineering, for his timely support and guidance throughout the event. I express my gratitude to Dr. N. Vijayakumar, Head of the Department of Civil Engineering, for providing me with this wonderful opportunity and continuous encouragement to coordinate this program successfully. I express my sincere gratitude to Mr. Kumar Mayank Priyadarshi, our resource person, for providing me with this wonderful opportunity and for his continuous encouragement in successfully coordinating this program. I also extend my heartfelt thanks to Mrs. Kandukuri Anitha, for her constant support and coordination in making this program a success.