STAAD.Pro Advanced Analysis Training Course

Professional Development Training Course Outline

Category	Construction Institute	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The STAAD.Pro Advanced Analysis Training Course is designed for structural engineers, civil engineers, design consultants, EPC professionals, BIM specialists, infrastructure developers, and engineering graduates seeking expertise in advanced structural analysis and design. This intensive training covers finite element analysis (FEA), steel structure design, reinforced concrete analysis, dynamic analysis, seismic design, wind load analysis, foundation modelling, industrial structures, bridge analysis, high-rise building analysis, structural optimisation, performance-based engineering, and international design codes. Participants gain hands-on experience using real-world engineering projects while developing practical skills aligned with current global construction and infrastructure demands.

The course combines theoretical concepts with extensive project-based learning to enable participants to confidently perform advanced structural modelling, nonlinear analysis, design validation, code compliance, and engineering optimisation using STAAD.Pro. Through practical workshops, industrial case studies, and capstone projects, learners acquire the competencies required for careers in structural design engineering, offshore engineering, industrial plant engineering, infrastructure development, smart city projects, renewable energy structures, and digital construction technologies. Upon successful completion, participants will be capable of delivering safe, economical, and code-compliant structural designs that meet international engineering standards.

Programme Curriculum

STAAD.Pro Advanced Analysis Training Course

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analysis (FEA), steel structure design, reinforced concrete analysis, dynamic analysis, seismic design, wind load analysis, foundation modelling, industrial structures, bridge analysis, high-rise building analysis, structural optimisation, performance-based engineering, and international design codes. Participants gain hands-on experience using real-world engineering projects while developing practical skills aligned with current global construction and infrastructure demands.

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Course Objectives

1. Master Advanced STAAD.Pro Structural Analysis techniques for complex engineering projects.
2. Develop expertise in Finite Element Analysis (FEA) for structural modelling.
3. Perform Seismic Analysis and Earthquake-Resistant Design using international standards.
4. Analyse structures subjected to Wind Load and Dynamic Loading.
5. Design Steel Structures using global design codes.
6. Perform Reinforced Concrete Design with automated design workflows.
7. Execute Nonlinear Structural Analysis for advanced engineering applications.
8. Optimise structural designs for cost efficiency and sustainability.
9. Apply BIM Integration and digital engineering workflows.
10. Model Industrial Structures, Pipe Racks, and Plant Buildings.
11. Perform Foundation Analysis and Structural Stability Assessment.
12. Generate professional Engineering Reports, Design Documentation, and Code Compliance Reports.
13. Execute complete Real-Time Industry Projects using international engineering best practices.

Target Audience

1. Structural Engineers
2. Civil Engineers
3. Design Engineers
4. Consulting Engineers
5. Project Engineers
6. BIM Engineers and Coordinators
7. Infrastructure Professionals
8. Civil Engineering Students and Fresh Graduates

Course Modules

Module 1: STAAD.Pro Advanced Environment

- Installation and software configuration

- User interface and workflow
- Project setup
- File management
- Advanced modelling environment
- **Case Study:** Multi-storey commercial building setup.

Module 2: Advanced Structural Modelling

- Complex geometry creation
- Curved structures
- Industrial frame modelling
- Parametric modelling
- Structural connectivity
- **Case Study:** Industrial warehouse modelling.

Module 3: Material Properties and Section Modelling

- Steel materials
- Concrete materials
- Composite sections
- Custom section creation
- Material libraries
- **Case Study:** Industrial steel plant structure.

Module 4: Advanced Load Generation

- Dead loads
- Live loads
- Wind loads
- Seismic loads
- Moving loads
- **Case Study:** High-rise office building load modelling.

Module 5: Load Combinations and Code Compliance

- IS Codes
- Eurocodes
- AISC
- ASCE
- Automatic load combinations
- **Case Study:** Multi-code design comparison.

Module 6: Finite Element Analysis (FEA)

- Plate elements
- Surface meshing
- Solid elements
- Mesh refinement
- Result interpretation
- **Case Study:** RCC water tank analysis.

Module 7: Steel Structure Design

- Beam design
- Column design
- Truss design
- Connection considerations
- Optimisation
- **Case Study:** Industrial fabrication workshop.

Module 8: Reinforced Concrete Design

- Beam design
- Column design
- Slab analysis
- Foundation design
- Reinforcement detailing
- **Case Study:** Residential apartment building.

Module 9: Dynamic and Seismic Analysis

- Response spectrum
- Time history
- Modal analysis
- Earthquake loading
- Structural performance
- **Case Study:** Hospital building seismic evaluation.

Module 10: Wind Engineering

- Wind pressure calculation
- Wind tunnel concepts
- Gust effects
- Tall building analysis
- Serviceability checks
- **Case Study:** Communication tower analysis.

Module 11: Foundation and Stability Analysis

- Mat foundations
- Pile foundations
- Soil interaction
- Stability checks
- Settlement assessment
- **Case Study:** Industrial equipment foundation.

Module 12: Industrial Structures

- Pipe racks
- Conveyor structures
- Process buildings
- Equipment supports
- Crane gantries
- **Case Study:** Petrochemical processing plant.

Module 13: Bridge and Infrastructure Analysis

- Bridge deck modelling
- Pier analysis
- Moving vehicle loads
- Expansion joints
- Structural evaluation
- **Case Study:** Highway bridge structural assessment.

Module 14: Advanced Design Optimisation

- Member optimisation
- Cost reduction
- Material efficiency
- Structural performance improvement
- Automated design iterations
- **Case Study:** Steel warehouse optimisation project.

Module 15: Capstone Project and Professional Reporting

- Complete industrial project
- Structural analysis
- Design verification
- Quantity estimation
- Engineering report preparation
- **Case Study:** G+20 commercial high-rise building from modelling to final design documentation.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
21 Sep 2026	02 Oct 2026	Online	$2,000
21 Sep 2026	02 Oct 2026	Physical	$3,000
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com