

Bentley ProStructures - Model steel and concrete, detail with precision

Target Audience

This course is designed for structural engineers, steel detailers, rebar detailers, BIM modelers, civil engineers, construction engineers, fabrication professionals, CAD technicians, and project coordinators involved in structural design and detailing projects. It is also suitable for professionals seeking to implement BIM-based structural workflows and improve fabrication and construction documentation processes.

Course Objectives

This course aims to provide participants with the knowledge and practical skills required to create intelligent structural steel and reinforced concrete models using Bentley ProStructures. Participants will learn to model structural components, apply reinforcement, generate fabrication drawings, create quantity reports, and exchange information with analysis and fabrication systems. The training also emphasizes BIM collaboration, project coordination, and digital project delivery workflows used in modern structural engineering projects.

Course Outcomes

Upon successful completion of this course, participants will be able to:

- Create intelligent structural steel and reinforced concrete models using ProStructures.
- Develop structural elements including beams, columns, slabs, walls, foundations, bracing systems, stair towers, handrails, and platforms.
- Apply and manage reinforcement using face-based and user-defined reinforcement techniques.
- Modify structural elements using bolts, holes, notches, polycuts, and advanced detailing tools.
- Generate fabrication, erection, placing, and general arrangement drawings automatically.
- Produce bar bending schedules, parts lists, bills of materials, and quantity reports.
- Create NC data and digital fabrication deliverables for manufacturing workflows.
- Exchange structural information using IFC, ISM, SDNF, CIS/2, iModels, and 3D PDFs.
- Integrate ProStructures models with STAAD, RAM, OpenBuildings Designer, and OpenBridge Modeler.
- Deliver coordinated BIM-based structural projects from modeling through fabrication documentation.

Course Outline

The course comprises **40 hours of theory and hands-on laboratory sessions** and is divided into **10 comprehensive modules**. Each module is followed by practical exercises and real-world site development workflows designed to reinforce learning and evaluate the participant's understanding of the concepts covered.

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Module 1: Introduction to ProStructures and Structural BIM Workflows

- Overview of ProStructures
- Structural BIM Concepts
- User Interface and Workspace Setup
- Project Configuration and Standards
- Structural Modeling Workflow

Module 2: Structural Steel Modeling Fundamentals

- Steel Modeling Environment
- Beams and Columns
- Bracing Systems
- Portal Frames
- Platforms and Walkways
- Structural Steel Libraries

Module 3: Advanced Steel Structure Modeling

- Complex Steel Assemblies
- Connections and Steel Components
- Handrails and Ladders
- Stair Towers
- Steel Detailing Workflows
- Parametric Steel Object Management

Module 4: Reinforced Concrete Modeling Fundamentals

- Concrete Modeling Environment

- Slabs and Walls
- Columns and Beams
- Foundations and Footings
- Parametric Concrete Objects
- Concrete Modeling Standards

Module 5: Reinforcement Modeling and Detailing

- Reinforcement Fundamentals
- Face-Based Reinforcement Modeling
- Rebar Placement Techniques
- User-Defined Reinforcement
- Complex Rebar Shapes
- Reinforcement Modifications and Adjustments

Module 6: Structural Modifications and Model Management

- Holes and Openings
- Bolts and Fasteners
- Notches and Polycuts
- Diagonal Cuts
- Structural Revisions
- Templates and Style Management

Module 7: Structural Documentation and Drawing Production

- Fabrication Drawings
- Erection Drawings
- General Arrangement Drawings
- Placing Drawings
- Automatic Drawing Updates
- Detail Styles and Drawing Standards

Module 8: Quantity Take-Offs and Fabrication Deliverables

- Bill of Materials (BOM)
- Parts Lists Generation
- Bar Bending Schedules (BBS)

- Batch Reporting Workflows
- NC Data Generation
- Digital Fabrication Deliverables

Module 9: Collaboration and Interoperability

- IFC and ISM Workflows
- SDNF and CIS/2 Exchange
- OpenBuildings Designer Integration
- OpenBridge Modeler Integration
- STAAD and RAM Integration
- ERP and CNC Machine Connectivity

Module 10: Project Delivery and Advanced Workflows

- ProjectWise Managed Workspaces
- iModel Generation
- 3D PDF Publishing
- Design Coordination Workflows