

AVEVA E3D Structural Modeling

Target Audience

- Structural Designers and Engineers involved in industrial plant design projects.
- AVEVA E3D users looking to develop structural modeling skills.
- BIM and CAD professionals transitioning to AVEVA E3D Structural Design.
- Project engineers responsible for creating and coordinating steel structures.
- Engineering graduates seeking careers in plant structural design and 3D modeling.

Course Objectives

- Introduce participants to the AVEVA E3D structural modeling environment and workflows.
- Develop the skills required to model steel structures, pipe racks, platforms, stairs, and access systems.
- Enable users to create coordinated structural models that comply with project standards.
- Provide hands-on experience in structural detailing, clash detection, and model validation.
- Teach the generation of structural drawings, reports, and project deliverables from E3D models.

Course Outcomes

- Create and modify industrial structural models using AVEVA E3D efficiently.
- Model complex steel structures, equipment supports, and access systems with confidence.
- Perform interdisciplinary coordination and resolve clashes within integrated plant models.
- Generate accurate structural drawings, material take-offs, and project reports.
- Deliver high-quality, project-ready structural models following industry best practices and standards.

Course Outline

Number of Chapters: 8 Modules

Duration: 32 Hours

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Module 1: AVEVA E3D Structural Modeling Fundamentals

- Introduction to AVEVA E3D
- E3D User Interface and Navigation
- Structural Design Environment

- Project Structure and Model Hierarchy
- Sites, Zones, Structures and Frameworks
- Coordinate Systems and Grid Management
- Structural Catalogues and Specifications
- Structural Modeling Workflow

Module 2: Steel Member Modeling

- Column Modeling
- Beam Modeling
- Bracing Modeling
- Structural Member Positioning
- Member Orientation and Justification
- Member Editing and Modification
- Copy, Mirror and Replace Functions
- Structural Design Best Practices

Module 3: Structural Frameworks and Pipe Rack Modeling

- Framework Creation
- Multi-Level Structural Modeling
- Pipe Rack Structure Modeling
- Equipment Support Structures
- Structural Assemblies
- Structural Templates
- Industrial Steelwork Modeling
- Structural Model Organization

Module 4: Platforms, Stairs and Access Systems

- Platform Modeling
- Maintenance and Access Platforms
- Stair Modeling
- Ladder Modeling
- Handrail Modeling

- Toe Plates and Safety Features
- Access Openings

Module 5: Floors, Gratings and Structural Detailing

- Grating Modeling
- Floor and Walkway Modeling
- Structural Deck Systems
- Openings and Penetrations
- Structural Detailing Techniques
- Member End Treatments
- Structural Quality Checks
- Model Validation Procedures

Module 6: Advanced Structural Modeling

- Building Structure Modeling
- Mezzanine and Roof Structures
- Modular Structure Modeling
- Complex Steel Structures
- Structural Revisions and Modifications
- Design Optimization Techniques
- Modeling Standards and Conventions
- Structural Data Management

Module 7: Clash Detection and Model Coordination

- Structural Model Verification
- Clash Detection Fundamentals
- Clash Review and Resolution
- Structure-to-Piping Coordination
- Structure-to-Equipment Coordination
- Structure-to-Civil Coordination
- Model Review Workflows
- Quality Assurance and Approval Processes

Module 8: Drawings, Reports and Deliverables

- General Arrangement Drawings
- Structural Plans, Elevations and Sections
- Drafting and Annotation
- Material Take-Off Generation
- Steel Quantity Reports
- Weight and Member Reports
- Structural Deliverables Preparation