



Advanced Plant Design Course Using AVEVA E3D and Smart 3D: Piping, Equipment and Clash Management



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Introduction:

Advanced plant design using AVEVA E3D and Smart 3D, covering piping, equipment and clash management, is a 1-week course for piping, layout, equipment and structural designers in EPC contractors and owner operators, ending with a Plant Area Model Package and clash report. Plant models built without consistent specifications, naming rules and clash control produce late drawing changes, rework on site and unreliable data for operations. Nominees already model daily in one of the two platforms, and teaching is by hands-on lab work on a process unit model. CoreConcept Training Center delivers this advanced plant design course.

Course Objectives:

- Configure project hierarchy, catalogues, specifications and naming rules so that every discipline models against the same reference data
- Model and place equipment, nozzles and structural steel using templates, parametric components and plot plan constraints
- Route spec-driven piping with correct branches, supports and stress-critical lines in AVEVA E3D or Smart 3D
- Run clash and interference checks, manage clash status and lead model reviews with other disciplines
- Extract isometrics, general arrangement drawings and material take-offs that match the model and specifications
- Prepare model data and attributes for handover to construction, procurement and operations systems

Target Audience:

- Piping designers responsible for routing, supports and isometric deliverables
 - Layout and plot plan designers responsible for equipment arrangement and access
 - Equipment and structural designers responsible for vessel, nozzle and steel models
 - Lead designers responsible for model quality, reviews and discipline coordination
 - Design administrators responsible for catalogues, specifications and project setup
 - Engineering data staff responsible for model attributes and digital handover
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Course Outline:

Day 1: Plant Design Model Structure and Project Setup

- AVEVA E3D Design Hierarchy, Zones and Site Structure
- Smart 3D Workspace, Permission Groups and System Hierarchy
- Catalogue and Specification Review Before Modelling Starts
- Naming Conventions and Attribute Rules for Plant Models
- Model Quality Baseline Review of an Existing Project

Day 2: Equipment, Structures and Reference Data

- Parametric Equipment Templates and Nozzle Placement Methods
- Plot Plan Constraints for Spacing, Access and Maintenance
- Structural Steel Modelling of Pipe Racks and Platforms
- Smart 3D Rule-Based Design and Reference Data Behaviour
- Specification Changes and Their Effect on Existing Models

Day 3: Spec-Driven Piping Routing and Supports

- Spec-Driven Pipe Routing With Branches and Fittings
- Pipe Support Placement and Stress-Critical Line Handling
- Piping Model Consistency Checks Against Line Lists
- P&ID to 3D Model Comparison and Integrity Checks
- Valve Operability and Maintenance Access Clearance Checks

Day 4: Clash Management, Reviews and Drawing Production

- Clash Detection Rules, Tolerances and Clash Status Workflow
- Multi-Discipline Model Review Sessions and Comment Closure
- ISOGEN Isometric Extraction and Isometric Style Settings
- General Arrangement Drawing Production and Annotation Rules
- Material Take-Off Reports and Model Data Reconciliation

Day 5: Lab Work and the Plant Area Model Package

- Lab Exercise Modelling a Process Unit Area
 - Lab Exercise Routing Piping Across a Pipe Rack
 - Lab Exercise Resolving a Multi-Discipline Clash Set
 - Model Attribute Preparation for Digital Handover
 - Plant Area Model Package and Clash Report Completion
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Skills You Will Gain:

- Plant Model Administration
- Equipment Arrangement
- Spec-Driven Piping Design
- Pipe Support Modelling
- Clash Management
- Isometric Production
- Material Take-Off Reconciliation
- Digital Handover Preparation

Why Attend This Course:

- Deliver a Plant Area Model Package with a clash report and extracted drawings to the lead piping engineer and the project design manager
- Decide when a model area is ready for drawing extraction, review sign-off or handover
- Avoid late drawing revisions, field rework and material shortages caused by clashes and model data errors
- Coach junior designers on the specification checks, clash workflow and extraction settings practised in the lab

Conclusion:

Back at work, the participant gives the Plant Area Model Package and clash report to the lead piping engineer, the design manager and the construction planning team. They use it to decide which areas are ready for isometric issue and which clashes must close before the next model review. After the first issue of drawings, the organisation should compare drawing revisions, open clashes and material take-off differences with earlier projects and adjust its specification and review rules where they persist.

Frequently Asked Questions FAQ:

What should participants know before an advanced plant design course using AVEVA E3D and Smart 3D?

Participants should already model equipment or piping daily in AVEVA E3D Design or Smart 3D and read piping and instrumentation diagrams. Bringing their project's specifications, naming rules or a sample model area helps them apply the lab exercises to their own work.

How does an advanced plant design course using AVEVA E3D and Smart 3D differ from a beginner software course?

Beginner courses teach menus and basic modelling commands. This course assumes that skill and concentrates on project setup, specification-driven design, clash management, drawing extraction and data handover, the tasks that decide model quality on a live project.

Why does clash management matter in advanced plant design using AVEVA E3D and Smart 3D?

Clashes found on site cost far more than clashes resolved in the model. A clear clash rule set, status workflow and review routine lets disciplines close interferences before drawings are issued and keeps the model reliable for construction.

What do participants take back from the advanced plant design course using AVEVA E3D and Smart 3D?

Participants take back a Plant Area Model Package with a clash report, extracted isometrics and general arrangement drawings, plus specification checklists and review routines they can apply on their next project.