Tekla Structures Professional

(Complete Structural BIM & Detailing Mastery Program)

Course Objectives

This course aims to equip participants with comprehensive expertise in Tekla Structures for structural BIM modeling, detailing, and project coordination. It covers end-to-end workflows from 3D modeling and connection detailing to fabrication drawings, reporting, collaboration, and structural analysis integration. Participants will develop practical, industry-ready skills aligned with real-world steel and concrete project requirements.

Target Audience

This program is ideal for:

1. Structural Engineers and Detailers working on steel or concrete projects.
2. BIM Modelers and Coordinators involved in structural BIM workflows.
3. Fabrication and Precast professionals handling shop drawings and production models.
4. Civil/Structural Engineering students seeking industry-ready Tekla skills.
5. BIM Managers and Technical Leads aiming to implement company-level Tekla standards.

Course Outcomes

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

1. Develop complete structural 3D models for steel and concrete projects using industry-standard workflows.
2. Produce fabrication-ready GA, assembly, single-part, and cast unit drawings with advanced customization.
3. Generate accurate quantity take-offs, reports, and project tracking data using Organizer and templates.
4. Collaborate efficiently using Tekla Model Sharing, multi-user mode, and Trimble Connect workflows.
5. Apply structural analysis integration and advanced customization to meet enterprise-level BIM standards.

Course Outline

The course comprises **56**-hours of theory and labs and is divided into **16** different Modules. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

MODULE 1: Introduction to Tekla Structures

- Overview of Tekla Structures and BIM workflow
- Configurations, roles, and environments
- Starting Tekla (Classic startup & Tekla Launcher)
- Creating, opening, and managing models
- Project properties and autosave settings
- Understanding model templates

MODULE 2: User Interface & Basic Navigation

- Ribbon, Quick Launch, and side pane
- Contextual toolbar usage
- Selection and snapping tools
- Work planes and coordinate systems
- View controls, rendering modes
- Keyboard shortcuts & productivity tools

MODULE 3: Model Setup & Working Environment

- Grids creation and modification
- Creating and managing views
- Work area control
- Base points & coordinate systems
- Model display settings and color management
- Managing large models efficiently

MODULE 4: Modeling Fundamentals – Steel

- Creating columns, beams, plates
- Part properties and modification
- Copy, move, rotate, mirror tools
- Arrays (linear & radial)
- Selection filters & view filters
- Model templates and modeling identical areas

MODULE 5: Modeling Concrete & Reinforcement

- Concrete parts and pours
- Reinforcement basics
- Rebar groups and single rebars
- Pour units and cast units
- Managing reinforcement in large models

MODULE 6: Components & Connections (System Components)

- Introduction to system components
- Steel connections: Base plates, Clip angles, End plates, Bracing connections
- Built-up members
- Customizing component properties
- Analysis tabs in components

MODULE 7: Advanced Modeling Techniques

- Construction objects
- Reference models (IFC, DWG, etc.)
- Modeling with reference files
- Clash checking basics
- Advanced selection & filtering techniques
- Model checking tools

MODULE 8: Numbering & Model Organization

- Part and assembly numbering
- Numbering setup and tolerances
- Synchronizing numbering in multi-user
- Object statuses
- Model history and tracking

MODULE 9: Drawing Fundamentals

- Introduction to drawing mode
- Drawing types: GA drawings, Assembly drawings, Single-part drawings, Cast unit drawings

- Drawing views and layouts
- Snapping and editing in drawings
- Drawing updates and recreation

MODULE 10: Advanced Drawing Creation

- Master Drawing Catalog
- Rule sets and wizards
- AutoDrawings
- Multidrawings
- Cloning drawings
- AI Cloud Fabrication drawings
- Anchor bolt plans

MODULE 11: Drawing Customization & Control

- Drawing properties hierarchy
- View-level and object-level settings
- Detailed object-level settings
- Layouts and table sets
- Snapshots in drawings
- Managing drawing revisions

MODULE 12: Reports & Templates

- Introduction to template attributes
- Report generation
- Template attributes (Part, Assembly, Rebar, etc.)
- Custom report creation
- Using Template Editor: Interface, Components and objects, Graphical fields
- Symbol Editor basics
- Creating and customizing drawing symbols

MODULE 13: Collaboration & Model Sharing

- Tekla Model Sharing workflow
- Read-in & write-out process
- Baselines and version management
- Managing users and permissions
- Object locking & drawing locking
- Multi-user mode setup
- Conflict resolution
- Trimble Connect integration
- BCF workflows

MODULE 14: Reference Models & Coordination

- Importing IFC models
- Overlay vs reference models
- Managing reference objects
- Status sharing
- Clash coordination workflows

MODULE 15: Organizer – Planning & Tracking

- Introduction to Organizer
- Object Browser
- Property templates
- Custom categories
- Location-based categorization
- Quantity take-off (Steel & Concrete)
- Reporting from Organizer
- Tracking project status

MODULE 16: Structural Analysis Integration

- Introduction to analysis models
- Linking Tekla with analysis applications

- Creating loads: Point loads, Line loads, Area loads, Wind & temperature loads
- Load groups
- Creating analysis models
- Analysis model rules
- Exporting to analysis software