I. Introduction to Tekla Structures & BIM Concepts

- **Overview of Tekla Structures:** What is Tekla Structures, its applications in the construction industry, and its role in BIM workflows.
- **Understanding the User Interface (UI):**
  - Ribbon, File Menu, Side Pane
  - Selection switches and snap switches
  - Contextual toolbar
- **Model Creation Basics:**
  - Creating new models and saving files
  - Understanding environment, roles, and configurations
  - Single-user and multi-user models
- **Navigation and Viewing Tools:**
  - Zoom, pan, rotate
  - Creating and managing views (plan, elevation, 3D, detail views)
  - Work area and work plane management
  - Clipping planes
- **Basic Object Manipulation:**
  - Copy, move, rotate, mirror
  - Inquiring object and assembly properties
  - Selecting objects

II. Core Modeling Techniques

- **Grid Creation:**
  - Creating rectangular and radial grids
  - Modifying and deleting grids
  - Setting grid properties
- **Reference Models:**
  - Inserting and managing reference models (e.g., architectural, MEP)
  - Clash detection and resolution
- **Modeling Structural Elements (General):**
  - Creating construction lines, construction circles, points
  - Measuring tools
  - Defining structural profiles and materials
  - Assigning phases to objects

III. Steel Modeling

- **Steel Parts:**
  - Creating steel columns, beams (single, poly, curved, twin profile, orthogonal), plates, bent plates
  - Modifying part properties and details

    - Creating cuts and fittings (polygon cut, line cut, part cut, fit part)
- **Steel Connections (System Components):**
    - Understanding and utilizing system components (pre-defined connections)
    - Common connection types: base plates, haunches, end plates, splices, fin plates, shear plates, clip angles, bolted gussets, stiffened end plates, stub connections, welded connections
    - Modifying and editing connections
    - Creating and managing bolt groups (properties, slotted holes)
    - Adding welds and setting weld properties
- **Custom Components:**
    - Understanding custom components and their benefits
    - Creating basic custom components
- **Miscellaneous Steel:**
    - Modeling handrails, ladders, safety gates, stairs
- **Pre-Engineered Buildings (PEB):**
    - Understanding PEB components
    - Modeling bracing, purlin connections, bracing connections
- **Assemblies:**
    - Understanding part and assembly details
    - Creating and managing assembly components
    - Removing parts from assemblies

IV. Concrete Modeling

- **Concrete Parts:**
    - Creating concrete columns, beams, slabs, footings (isolated, strip), piles
    - Creating structural columns and concrete beams
    - Modifying concrete part properties
- **Reinforcement Modeling (Rebar):**
    - Creating rebars (single, group, mesh)
    - Modifying rebar properties
    - Creating rebar sets
- **Cast Units:**
    - Creating and positioning cast units

V. Numbering, Reports & Drawings

- **Numbering:**
    - Understanding numbering principles
    - Numbering settings and performing numbering
    - Changing number options (part and assembly)
- **Reports & Bill of Quantities (BOQ):**
    - Understanding detail bill of quantities
    - Creating various reports (BOM, drawing list, bolt list, material list, rebar reports)

    - Exporting BOQ files
- **Drawing Production:**
    - Understanding drawing categories and drawing list
    - Drawing properties and creation
    - Creating General Arrangement (GA) drawings (3D model, plan views, elevations, sections)
    - Creating Assembly drawings and cloning
    - Creating Single Part drawings
    - Creating Multi drawings
    - Creating Anchor Bolt Plans
- **Drawing Management:**
    - Editing drawings (dimensions, section views, detail views, weld marks, level marks, symbols)
    - Adding text and associative notes
    - Customizing grid labels
    - Revising and updating drawings
    - Working with templates
    - Printing drawings
    - Working with NC files (for fabrication)
    - Exporting drawings (DWG, DXF)

VI. Advanced Topics (Often in Intermediate/Advanced Courses)

- **Collaboration:**
    - Using Trimble Connect for model sharing and collaboration
    - Importing, exporting, and linking model data with other software
- **Advanced Modeling Techniques:**
    - Complex geometry creation
    - Advanced custom components
- **Troubleshooting:**
    - Detecting and fixing clashes
- **Project Management & Planning:**
    - Planning and tracking projects within Tekla
- **Integration with Analysis & Design:**
    - Transferring models to and from structural analysis software (e.g., Tekla Structural Designer, STAAD.Pro, ETABS)
    - Understanding analysis settings and results within Tekla (if using Structural Designer)
    - Foundation design (pad footing, strip footing, pile cap, piled mat)
- **API (Application Programming Interface):** (For very advanced users/developers)
- **Model Organization and Management:**
    - Object representation and filters
    - Organizer and Task Manager

This syllabus provides a general outline. Specific courses may emphasize certain aspects

more than others, especially if they are tailored for particular roles like steel detailers, rebar detailers, or concrete contractors. Many training providers also include practical exercises, live projects, and case studies to provide hands-on experience.