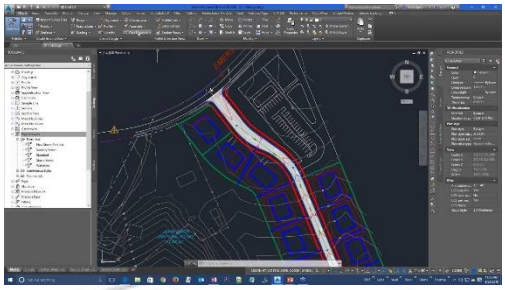
AC210 - Engineering Drafting & Design using AutoCAD Civil 3D Course

Course Duration: 5 Days
Training Fee: KSH 40,000 | USD 400
Course Registration: **Register Here>>**

1.0. Introduction



AutoCAD Civil 3D is one of the great technological success in Computer Aided designs! AutoCAD Civil 3D is a civil engineering design and documentation software that supports Building Information Modeling (BIM) workflows by extending the value of the model. With a focus on optimizing a variety of civil infrastructure project workflows, such as roads and highways, land development, rail, airports and water, Civil 3D helps civil infrastructure project teams improve delivery, maintain more consistent data and processes, and respond faster to project changes. Civil 3D helps organizations streamline time-consuming tasks such as intersections, roundabout and corridor design, parcel layout, pipes and grading with specific tools and customizable design standards.

1.1. Course Overview

Autodesk Civil 3D is a design and documentation solution for civil engineering. By learning to use Civil 3D, you can improve project performance, maintain consistent data and processes, and respond faster to change. This course introduces the basics of the software to new Civil 3D users. The instructor shows how to model a surface, lay out parcels, and design geometry, including the making of horizontal alignments and vertical profiles. Next, demonstrates how to create corridors, cross-sections. It covers working with feature lines and grading objects, and wraps up by providing an overview of the plan production tools. Topics include: Navigating the Civil 3D interface, using point groups and description keys, importing survey data, managing figures, Creating and analyzing surfaces, creating parcels, working with alignments, working with profiles and profile views, creating basic and advanced corridors, using an intersection object, making sample lines, cross-sections, and section views, creating and editing feature lines.

1.2. Course Contents/Outline

i. **Introduction to AutoCAD Civil 3D:** What is AutoCAD civil 3D; creating a drawing, saving your drawing, setting up the workspace; understanding user interface; basic functionality; changing display and viewing drawing in Model.
ii. **Point Tutorials:** Creating point Data; Import points, update point groups, display and editing points, User defined properties to points; querying user-defined property information.
iii. **Drawing Topographic Features:** Creating feature graphics in AC3D; Using hatch patterns; using trim and mirror, array, block, scale and copy command in AutoCAD Civil 3D.
iv. **Working with Surfaces:** Creating a surface in AutoCAD Civil 3D; building a surface in AutoCAD Civil 3D.

v. **Working with Alignments:** Creating alignment, adding free curves and spirals to alignment; editing alignments; working with offset alignment; adding widening to an offset alignment.
vi. **Designing Alignment using Local Standards:** Applying super elevation to an alignment; calculate super elevation for individual curve.
vii. **Creating Profiles:** Designing Simple Cross-sectional and longitudinal Profiles; using Surface Profile; Using Layout Profiles.
viii. **Sectional Tutorial:** Creating Section Views in Civil 3D; Creating Sample Lines; Creating Section Views.
ix. **Corridor Assembly:** Working with Assemblies; Creating assembly; modifying the subassembly Name Template; Managing Assemblies and Sub-assemblies.
x. **Corridor Tutorial:** Create a Basic Corridor Model; Create an Assembly with a Transition Lane.
xi. **Intersection Tutorial:** Intersections; Creating Intersections; Creating Peer Road Intersection; Creating a Primary Road Intersection; Creating Intersections with existing Geometry.
xii. **Parcel Tutorial:** Creating Parcels; Creating Parcels from AutoCAD objects; Subdividing a parcel with a Free-Form Segment; Subdividing Parcel with a Slide Line; Subdividing Parcel with a Swing Line.
xiii. **Preparing Map Layout in Civil 3D:** Create Coordinates grids in AutoCAD Civil 3D; Creating coordinates grids; Using Ortho and Offset commands; Using Text in AutoCAD Civil3D; Adding marginal information in AutoCAD Civil 3D.

1.3. Expected Learning Outcomes

On completion of this course, the participants are expected to have learned the Creation of Center Alignments, Design Profile, Sample Lines, Points and Surfaces. Additionally, the participant will grasp skills in adjustment of Surfaces; Creation of Surface Profile and Sample Lines; viii. Performing Calculations such as Cut and Fill (Earth Work); Performing the basic calculations using civil 3D software; Performing Calculations such as Pavement Layers Quantity Estimation; Modeling Road Corridor in 3D View among other CAD tools.

1.4. Training Tools (Hardware and Software)

1. Laptop or PC;
2. AutoCAD Civil 3D;
3. Microsoft Excel;
4. Sample GPS Data.

1.5. Training Style and Approach

1. On-site instructor-led training;
2. On-line self-paced training (optional);
3. Use of PowerPoint Slides;
4. Use of Case Study Videos;
5. Data Collection using phones, GPS etc.

1.6. Who Should Attend?

Engineering Experts; Surveying Experts; Civil Engineers; Water Engineers etc.