Course: AutoCAD Civil 3D

Course Description
Autodesk AutoCAD Civil 3D is covers the basics of AutoCAD Civil 3D with a focus on the use of infrastructure design tools such as earthwork, subdivision, highways, land development, survey, and drainage.

Class and Lab hours:
80 (55 Theory, 25 Lab)

Prerequisite:
Need to be an architect/engineer /technologists with basic knowledge of highway design.

Course Objectives
Upon completion of the course, trainees/students will be able to:
1. *Work with survey elements such as points, surfaces, etc.*
2. *Design the infrastructure elements such as corridors and pipe networks*
3. *This class focuses on the core concepts of various infrastructure tools available in the AutoCAD Civil 3D.*

Major Instructional Areas:
1. *The basics of alignment design*
2. *The basics of surface elements*
3. *Generate surface grading's, corridors, and parcels*
4. *Quantity take offs for corridors and grading's*
5. *Layout and design of pipe networks (Pressure and Gravity)*

Detailed Course Outline

Unit Heading	Unit Outcomes	Unit Topics
1. Starting Autodesk AutoCAD Civil 3D	The basics of AutoCAD Civil 3D AutoCAD Civil 3D interface	• Introducing AutoCAD Civil 3D and its GUI
2. Working with Survey Points and Surfaces	Create points, surfaces and customize their styles	• Creating and editing point objects • Creating and editing point settings, point styles, and point label styles • Editing Points • Creating and editing point groups • Creating and editing surfaces, surface styles, surface labels, and surface label styles • Creating Volume Surfaces • Analyzing surfaces • Creating Surface Analysis Tables
3. Working with Alignments and Profiles	Create and customize alignments and profiles	• Creating and editing alignments • Designing criteria-based alignments • Editing alignment properties • Creating and editing alignment styles, alignment label styles • Adding alignment tables • Creating and editing super elevation • Defining a profile design criteria • Editing layout/design profiles • Creating and editing profile view styles, profile labels, band sets, and band styles • Viewing and editing profile properties, profile view properties
4. Working with Assemblies, Sub-Assemblies and Corridors	Create and customize assemblies, sub-assemblies, and corridors	• Creating assemblies and assembly styles • Using assembly codes • Working with sub-assemblies • Adding assemblies to TOOL PALETTES • Creating corridors and corridor surfaces • Calculating earthwork volumes • Creating civil 3D objects using corridors • Selecting and editing corridor station • Checking the corridor visibility • Extracting corridor solids and bodies
5. Sample lines, Sections, and quantity takeoffs	Create sample lines, sections, and perform quantity take off	• Creating Sample Lines • Viewing and editing sample line properties • Sample line group properties • Editing sample lines • Creating single and multiple section views

		• *Viewing and editing section view properties* • *Defining Quantity Take Offs criteria* • *Computing materials* • *Generating volume reports*
6. Grading	*Create and edit the grading*	• *Grading objects* • *Creating grading criteria sets* • *Creating grading groups* • *Editing grading using the grading editor tools* • *Creating grading infill* • *Viewing and editing grading styles*
7. Pipe and Pressure Networks	*Create and edit pipe and pressure networks*	• *Creating a pipe network* • *Drawing pipe network parts in a profile view* • *Viewing and editing network properties* • *Editing pipe network in plan layout* • *Performing interference check* • *Swapping parts* • *Creating pressure networks* • *Creating pressure networks from objects* • *Viewing and editing pressure network properties* • *Editing pressure network* • *Adding pressure network labels and tables* • *Validating a pressure network*

Evaluation:

There will be one exam that every trainee/student must pass with at least 75% or more to get a certificate of completion from BIMNCAD.

Suggested Learning Approach

In this course, you will study individually or within a group of your peers. As you work on the course deliverables, you are encouraged to share ideas with your peers and instructor, work collaboratively on projects and team assignments, raise critical questions, and provide constructive feedback.