Coincent
Learning Drives Excellence

Coincent 3 Year Program Curriculum

AutoCAD Civil

Partnered by

AnisoTech

Empowering Learners,
Accelerating Careers.

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ABOUT COINCENT

Coincent offers a 3-Year Program that is a well-structured, career-focused initiative designed to equip students with practical skills, real-world experience, and strong placement support. The program is tailored to ensure progressive learning and career readiness across three year phases.

Why It's Unique

- Only one batch per year with limited seats (150 students) per Domain to maintain quality.
- Prepares students step-by-step to become job-ready by graduation.

DETAILED ABOUT COINCENT 3 YEAR AutoCAD Civil PROGRAM

"AutoCAD Civil Program at Coincent – Learn by Doing"

Coincent's **AutoCAD Civil Program** is designed to help students develop practical drafting skills through live training, guided practice, and hands-on projects. Students learn the fundamentals of AutoCAD and civil engineering drafting in a simple and structured manner.

The program covers 2D drafting, 3D modeling, engineering drawings, and construction documentation while giving students practical exposure through assignments and real-world projects.

Here, mentors from top MNC's will guide you and assist you through the sessions and live projects, training etc.

3- Year Program Structure Breakdown

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Year 1 :- Industrial Training

- "Before going to the curriculum preparation, Let's see the Basic Intro about AutoCAD Civil and how coincent is going to deep dive into its chapters" -

What makes this program unique is

- it runs **parallel to your college academics**, allowing you to learn, apply, and grow without compromising your education.
- Through hands-on projects, certifications, real-world mentorship, and a clear yearly progression — you'll be industry-ready by the time you graduate.

Program Overview

What is AutoCAD Civil and why it's important?

AutoCAD Civil is an industry-standard drafting software used by civil engineers to create accurate engineering drawings and designs. It is widely used for planning residential, commercial, and infrastructure projects.

Importance of AutoCAD Civil

- **Industry-Standard Drafting Tool**

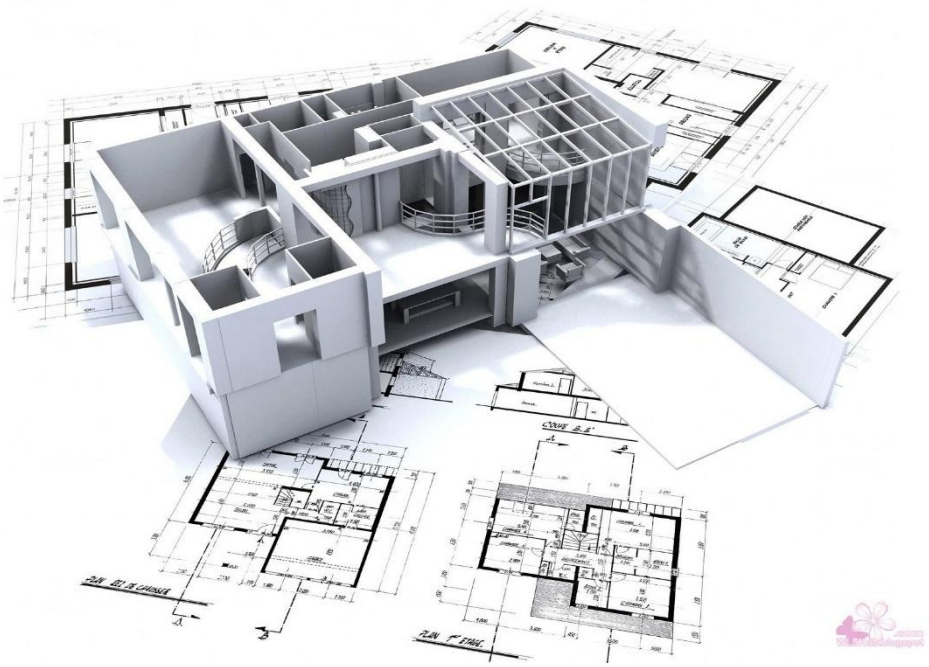
  AutoCAD is one of the most widely used CAD software in the civil engineering and construction industry for creating accurate technical drawings and documentation.

- **Improves Accuracy and Productivity**

  It enables engineers to create, modify, and manage drawings quickly, reducing errors and improving overall design efficiency.

- **Used in Real-World Projects**

  AutoCAD Civil is used for designing residential buildings, commercial structures, roads, bridges, drainage systems, site layouts, and other infrastructure projects, making it an essential skill for aspiring civil engineers.



Chapter - 1 :Introduction to AutoCAD Civil

1.1 Introduction to AutoCAD:

AutoCAD is a Computer-Aided Design (CAD) software developed by Autodesk. It is widely used to prepare engineering drawings, construction plans, site layouts, structural drawings, and infrastructure designs with high accuracy and efficiency.

Compared to manual drafting, AutoCAD allows engineers to edit, modify, and share drawings quickly while maintaining professional standards.

Applications of AutoCAD

- Residential Building Planning
- Commercial Building Design
- Road and Highway Projects
- Bridge and Infrastructure Design
- Site Layout Planning
- Survey Drawings
- Construction Documentation

1.2 Career Opportunities:

Learning AutoCAD opens doors to various career opportunities in the construction and infrastructure industry.

Some popular career roles include:

- Civil CAD Draftsman
- CAD Design Engineer
- Site Engineer
- Structural Draftsman
- Planning Engineer
- BIM Technician
- Infrastructure Design Engineer

1.3 AutoCAD Interface

Students will become familiar with the essential components of the AutoCAD workspace.

The chapter covers:

- Quick Access Toolbar
- Ribbon Menu
- Drawing Area

- Command Line
- Navigation Tools
- Properties Panel
- Status Bar

1.4 Installation & Drawing Setup

Students will learn how to:

- Install AutoCAD.
- Configure the workspace.
- Select appropriate drawing units.
- Create and save drawing templates.
- Organize project files.

Benefits and Outputs:

- Understand the fundamentals of AutoCAD.
- Navigate the AutoCAD interface with confidence.
- Configure the software for professional drafting.
- Understand where AutoCAD is used in Civil Engineering.
- Build a strong foundation for learning advanced drafting concepts.

Chapter 2: Introduction to Drawing Commands

2.1 Line

- The **Line** command is the most fundamental drawing tool in AutoCAD. It is used to create straight lines with precision and forms the basis for preparing engineering drawings such as floor plans, layouts, and construction designs.

2.2 Circle

- The **Circle** command is used to draw circles by specifying the center point and radius or diameter. It is commonly used for creating columns, manholes, pipe sections, and other circular elements in civil engineering drawings.

2.3 Polyline

- The **Polyline** command creates a series of connected lines and arcs as a single object. It simplifies editing and is widely used for drawing site boundaries, road alignments, walls, and other continuous engineering layouts.

2.4 Rectangle

- The **Rectangle** command allows users to quickly create rectangular shapes by selecting two opposite corners. It is commonly used for preparing room layouts, building plans, foundations, and structural components.

Benefits and Outputs:

- Understand the core drawing commands in AutoCAD.
- Create accurate 2D engineering drawings.
- Improve drafting efficiency and precision.
- Develop the confidence to work on basic civil engineering projects.

Chapter 3: Modify Commands

3.1 Move

- The **Move** command is used to reposition objects from one location to another without changing their size or shape. It is useful for organizing drawing components and adjusting layouts.

3.2 Rotate

- The **Rotate** command changes the orientation of an object around a selected base point. It is useful for positioning drawing elements at specific angles.

3.3 Mirror

- The **Mirror** command creates a reflected copy of selected objects across a specified axis. It helps save time when working with symmetrical building layouts and engineering designs.

3.4 Offset

- The **Offset** command creates parallel copies of selected objects at a specified distance. It is widely used for drawing walls, roads, pathways, and boundary lines.

3.5 Trim

- The **Trim** command removes unwanted portions of objects by cutting them to selected boundaries. It helps produce clean and accurate engineering drawings.

Benefits and Outputs:

- Learn the essential editing tools in AutoCAD.
- Modify drawings quickly and accurately.
- Improve drafting speed and productivity.
- Create clean and professional engineering drawings.
- Build confidence in handling real-world drafting projects.insights effectively through clean, informative data visualizations.

Chapter 4: Annotation & Dimensioning

4.1 Dimension Customization

- Why use NumPy over regular Python lists Learn to create and modify dimension styles by adjusting text, arrows, extension lines, and other settings to produce clear and professional engineering drawings.

4.2 Precision & Measurement Settings

- Understand how to configure units, precision, scale factors, and tolerances to ensure dimensions are accurate and meet engineering standards.

4.3 Text & Annotation Styles

- Create and manage text styles, multileader styles, and annotations to maintain consistency and improve the readability of construction drawings.

4.4 Dimension Style Management

- Apply and manage multiple dimension styles for different drawing requirements, such as floor plans, elevations, sections, and structural layouts, ensuring uniformity throughout the project.

Benefits and Outputs:

- Learn to create professional dimension and annotation styles.
- Improve the accuracy and clarity of engineering drawings.
- Maintain consistent drafting standards across projects.
- Apply appropriate dimension settings for different civil engineering drawings.

Chapter 5: Layers & Blocks

5.1 Layers

- Layers help organize different components of a drawing by separating objects such as walls, doors, windows, dimensions, and electrical layouts. They improve drawing management and make editing easier.

5.2 Layer Properties

- Learn to manage layer properties such as color, line type, line weight, visibility, lock, freeze, and transparency to create clear and well-organized engineering drawings.

5.3 Blocks

- Blocks are reusable groups of objects that can be inserted multiple times in a drawing. They help maintain consistency and reduce drafting time for commonly used components like doors, windows, columns, and furniture.

5.4 Block Creation & Libraries

- Create custom blocks and organize them into block libraries for quick access and reuse across multiple projects. This improves productivity and ensures standardized drafting practices.

Benefits and Outputs:

- Learn to organize drawings using layers.
- Manage layer properties for better visibility and control.
- Create and use reusable blocks efficiently.
- Improve drafting speed and maintain consistency across projects.

Chapter 6: Isometric Views

6.1 Introduction to Isometric Views

- Isometric views provide a 3D-like representation of 2D drawings, allowing engineers to visualize objects from different angles without creating a complete 3D model.

6.2 Isometric Drawing Tools

- Learn to create isometric drawings using isometric snap, isoplane settings, and drawing commands to accurately represent engineering components.

6.3 Isometric Grids & Planes

- Understand how to switch between the **Left**, **Top**, and **Right** isoplanes and use the isometric grid for accurate alignment and precise drafting.

6.4 Practical Applications

- Apply isometric drawing techniques to create piping layouts, machine components, structural details, and simple civil engineering models for better visualization and presentation.

Benefits and Outputs:

- Learn the fundamentals of isometric drawing in AutoCAD.
- Create 3D-like engineering drawings using isometric tools.
- Use isoplanes and isometric grids for accurate drafting.
- Improve the visualization and presentation of technical drawings.

Chapter 7: Modeling Commands and Generating 3D Diagrams in AutoCAD

7.1 Introduction to Modeling Commands

- Overview of 3D modeling concepts in AutoCAD.
- Understanding the conversion of 2D sketches into 3D objects.
- Introduction to solid and surface modeling techniques.

7.2 Extrude Command

- Creating 3D objects by extending 2D profiles along a specified axis.
- Understanding extrusion height and direction.
- Applications in creating basic solid models.

7.3 Revolve Command

- Creating 3D solids and surfaces by rotating 2D profiles around an axis.
- Understanding axis selection and rotation angle.
- Applications in designing symmetrical and cylindrical components.

7.4 Loft Command

- Generating complex 3D shapes by connecting multiple cross-sectional profiles.
- Creating smooth transitions between different profiles.
- Applications in organic and advanced surface designs.

7.5 Sweep Command

- Creating 3D objects by moving a 2D profile along a defined path.
- Understanding profile and path selection.
- Applications in designing pipes, rails, and curved components.

7.6 Generating 3D Models

- Creating basic 3D diagrams using modeling commands.
- Applying visualization techniques for better understanding of designs.
- Introduction to modifying and refining 3D models

Benefits and Outcomes:

- Understand basic 3D modeling concepts in AutoCAD.
- Create 3D objects using Extrude, Revolve, Loft, and Sweep commands.
- Develop simple engineering models from 2D sketches.
- Apply modeling techniques for real-world design applications.

Chapter 8: Generating 3D Diagrams in AutoCAD

8.1 Introduction to 3D Visualization

- Overview of creating and viewing 3D models in AutoCAD.
- Understanding the importance of visualization in design and engineering.
- Introduction to 3D viewing and presentation techniques.

8.2 3D Viewports

- Understanding different viewport configurations for 3D modeling.
- Viewing models from multiple angles and perspectives.
- Using different views to analyze and modify 3D designs accurately.
- Improving design accuracy through proper model visualization.

8.3 Shading and Rendering

- Applying visual styles to improve the appearance of 3D models.
- Understanding shading techniques for better depth perception.
- Adding materials and rendering effects for realistic representation.
- Enhancing the presentation quality of final 3D designs.

8.4 Generating 3D Diagrams

- Creating and displaying 3D models using AutoCAD tools.
- Applying suitable views, shading, and rendering techniques.
- Preparing 3D diagrams for design analysis and presentation.

Benefits and Outcomes:

- Understand 3D visualization techniques in AutoCAD.
- Use 3D viewports to analyze models from different perspectives.
- Apply shading and rendering techniques to enhance 3D diagrams.
- Create realistic and presentable 3D representations of designs.

Chapter 9: Solid Editing Tools in AutoCAD

9.1 Introduction to Solid Editing

- Overview of modifying and refining 3D solid models in AutoCAD.
- Understanding tools used to improve the shape, appearance, and functionality of 3D objects.
- Introduction to solid editing operations for engineering designs.

9.2 Fillet Command

- Creating rounded edges and corners on 3D solids.
- Understanding the use of radius values for edge modification.
- Improving design appearance and reducing sharp edges.

9.3 Chamfer Command

- Creating beveled edges by trimming corners of 3D solids.
- Understanding chamfer distance and angle settings.
- Applications in improving manufacturability and reducing sharp corners.

9.4 Shell Command

- Converting solid objects into hollow structures.
- Removing selected faces and defining wall thickness.
- Applications in product design, casting, and manufacturing models.

9.5 Boolean Operations

- Modifying 3D solids using logical operations.
- **Union:** Combining multiple solids to create a single object.
- **Subtract:** Removing one solid from another to create cut features.
- **Intersect:** Creating a new solid from overlapping volumes.
- Applications in developing complex 3D shapes.

9.6 Editing and Refining 3D Models

- Applying solid editing tools to improve model accuracy.
- Combining multiple operations to create detailed components.
- Preparing models for visualization and manufacturing.

Benefits and Outcomes:

- Apply solid editing tools to modify 3D models.
- Create rounded and beveled edges using Fillet and Chamfer.
- Develop hollow objects using Shell operations.
- Use Boolean operations to create complex 3D designs.
- Improve the accuracy and quality of engineering models.

Chapter 10: AutoCAD Design Exercises

10.1 Drawing of Front Elevation of House

- Creating a 2D front elevation drawing of a residential building.
- Representing architectural elements such as doors, windows, walls, and roof structures.
- Understanding proportions, symmetry, and alignment of building components.
- Adding dimensions, annotations, and material details for construction reference.
- Representing roof lines, ground levels, and exterior features accurately.

10.2 Generation of False Ceiling Using AutoCAD 3D

- Creating 3D false ceiling models using AutoCAD modeling tools.
- Applying **Extrude** and **Sweep** commands to develop ceiling elements.
- Designing lighting fixtures, vents, and cutouts using solid editing tools.
- Creating layered and stepped ceiling patterns using modeling techniques.
- Applying materials and rendering techniques to visualize realistic ceiling designs.

10.3 Practical Design Applicati ons

- Developing real-world architectural and interior design models.
- Applying 2D drafting and 3D modeling concepts to design projects.
- Improving visualization and presentation skills using AutoCAD tools.

Benefits and Outcomes:

- Create accurate front elevation drawings of residential buildings.
- Develop 3D interior designs using AutoCAD modeling tools.
- Apply editing and visualization techniques for realistic representations.
- Use AutoCAD for practical architectural design applications.

Year 2 :- Application & Project Phase:

– Year 2 is full of hands-on-experience on 8 live projects –

CAPSTONE PROJECTS

Project 1 - False Ceiling Drafting using AutoCAD 2D

- Interior Design is the discipline dealing with the principles of design and construction and ornamentations of fine buildings. False Ceiling is one of the important interior design aspect for houses, offices, restaurants etc.
- In the present project false ceiling techniques are discussed and design of false ceiling is done using AutoCAD 2D

Project 2 - Drafting of Site Plan Using AutoCAD

- Understanding the concept and importance of site plan drawings in civil engineering.
- Creating scaled layouts representing existing and proposed site features.
- Setting up the drawing environment with proper units, layers, and scales.
- Defining site boundaries and plotting property layouts.

- Adding dimensions, annotations, and necessary details for accurate document ation.

Project 3 - Drafting of Sectional House in AutoCAD

- Understanding sectional views and their importance in building design.
- Creating cross-sectional drawings to represent internal building details.
- Drafting walls, floors, roofs, windows, and structural components.
- Representing vertical relationships and construction elements.
- Adding dimensions, annotations, and material specifications for design interpretation.

Project 4 - House Drawing using AutoCAD 3D

- Building drawing or house drawing is very essential before construction.
- Generally, 2D drawings are used to draw a house plan, elevation and side views.
- But visualisation of total house in 3D gives an overall idea of house. In the present work 3D view of house is drawn using AutoCAD

Project 5 – Drafting of Boundary Wall in AutoCAD

- Creating boundary wall layouts according to site requirements.
- Setting up drawing units, scale, and layers for accurate drafting.
- Representing wall structures, gates, and landscaping features.
- Applying suitable line types and thicknesses for construction details.
- Adding dimensions and annotations for height, length, and material specifications.

Project 6 - Drafting of Building Elevation using AutoCAD 2D

- Front view of a building is known as elevation of a building.
- The main aspects to keep in mind while designing building front elevation is to plan the OPEN SPACES, COVERED SPACES and the ELEVATION DESIGN of the each floor if the building has more than 1 level.
- Also called an "ENTRY ELEVATION", the front elevation of a building plan shows features such as entry doors, windows, the front porch and any items that protrude from the building such as side porches or chimneys.
- In the present work building elevation is drafted using AutoCAD 2D

Project 7 - 3D Modeling of Suspension Bridge Using AutoCAD

- Introduction to suspension bridge components and structural elements.
- Creating a 3D model using AutoCAD modeling tools.
- Setting up the drawing environment for 3D design.
- Modeling bridge deck, towers, and supporting structures.
- Applying 3D visualization techniques for realistic representation.
- Developing an engineering model for design understanding and presentation.

Year 3 – Placement & Internship Phase:

1. Guaranteed Internship Phase

- In Year 3, Coincent guarantees an internship with partner companies for every student at no extra cost. The internship includes a formal Internship Offer Letter and a Completion Certificate upon successful completion.
- This is part of their "Industrial Training + Internship" model — training fees cover live classes, mentorship, and project work, but the internship phase itself is completely complimentary

2. Structured Placement Preparation

- Coincent supports students in portfolio-building with multiple completed projects (typically around 7+) and Microsoft-aligned certifications .
- They provide mock interviews, resume reviews, and training for HR and technical rounds — all aimed at preparing you for real-world hiring.

3. Final Take

- Coincent's 3rd year transforms theory into practical experience through a guaranteed internship, builds a robust credentials portfolio, and equips you with placement-ready skills via mock interviews and resume prep. If you're in your 4th year, this phase sets you on a clear trajectory from "training" to "hired."

Step Into Top Civil Design Roles with AutoCAD

The top career opportunities for learners skilled in **AutoCAD Civil** span construction, infrastructure, architecture, and engineering industries. Some of the key roles include:

- **AutoCAD Civil Designer:** Creates detailed 2D drawings and 3D models for civil engineering projects, including roads, buildings, drainage systems, and site layouts.
- **Civil Draftsman:** Prepares technical drawings, construction plans, sectional views, and structural detailing based on engineering specifications.
- **CAD Engineer:** Develops engineering drawings, modifies design layouts, and supports project documentation using AutoCAD for civil and infrastructure projects.
- **Site Planning Engineer:** Designs site plans, plot layouts, utility networks, and land development projects while ensuring compliance with engineering standards.
- **Structural CAD Designer:** Produces structural drawings for foundations, beams, columns, slabs, and reinforcement detailing for residential and commercial projects.

- **Quantity Surveying Assistant:** Supports estimation, quantity take-offs, and preparation of construction drawings for project planning and cost analysis.
- **BIM/CAD Technician:** Assists in creating and managing digital construction models, collaborating with architects and engineers for coordinated project execution.
- **Infrastructure Design Technician:** Contributes to the design of highways, bridges, drainage systems, and other public infrastructure using AutoCAD drafting tools.
- **Construction Documentation Specialist:** Prepares detailed working drawings, construction documentation, and design revisions required during project execution.
- **Junior Civil Design Engineer:** Assists senior engineers in preparing engineering drawings, design modifications, and project documentation for residential, commercial, and infrastructure developments.