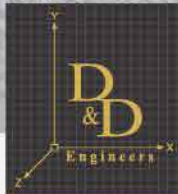


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# DESIGN & DRAFT ENGINEERING INSTITUTE

AN MEP CENTER

Training | Placement Assistance | Mock Interviews | Site Visits

## AURANAGBAD

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Osmanpura, Aurangabad.  
Cell.: 8698111134 / 8793637310  
9730265601

## NASHIK

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## NAGPUR

Plot No.13, Makade Layout,  
Bhande Plot Square, Nagpur.  
Mob. : 7972634318 / 9156888827  
9175886212



# AUTOCAD

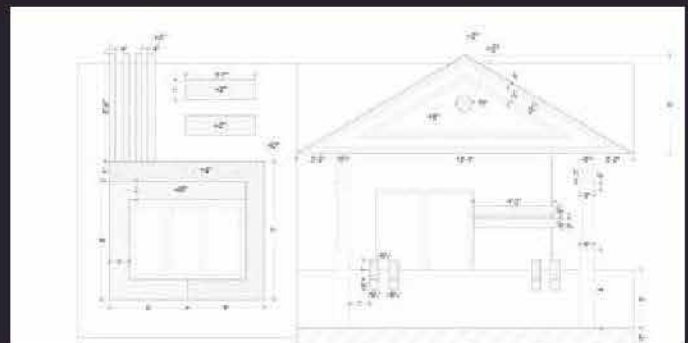


AutoCAD is a world wide used software for Planning, Detailing, Drafting & 3D modelling. As a Civil Engineer or as an Architect it is a software which is must to be learnt. It is a very user friendly software which is used by Architects, Structural Designers, Civil Engineers, Interior Designer, Surveyors and many more.

## What it Includes

**Planning-** In this module we learn to create plans and learn the basic commands used in AutoCAD. We learn the Dimensioning methods and conversion of drawings from one unit to other.

**Detailing-** In this part we study to make Dynamic Blocks which is used to create and place the furniture's and other detailing objects. We will also learn to use the layer systems and its uses. We will also learn to change the properties of objects.



**Other Drawings –** during this module we will learn how to draw elevation, section, block plan, Area Calculation which are used in Submission Drawings & Working Drawings. We will learn to create the center line plan, Foundation plan and RCC Drawings.

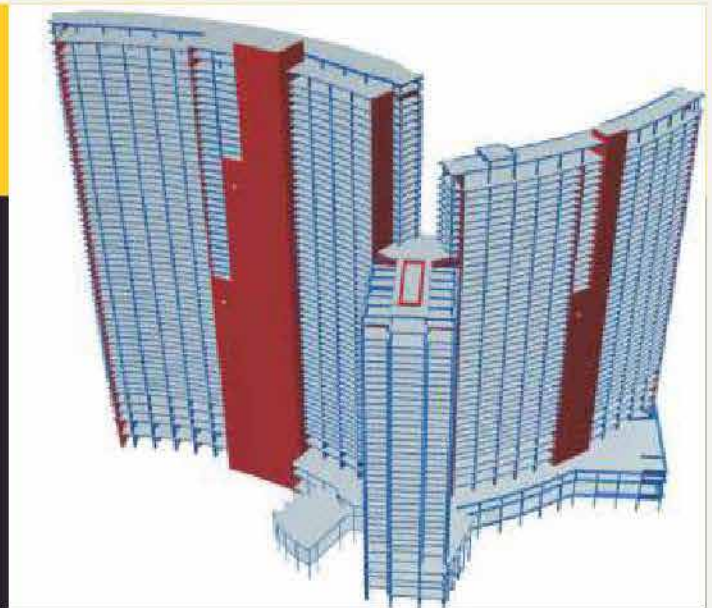
**Output–** After creation the time comes for the Presentation. We will Learn how to create PDF, JPG & many more format of your drawing, or directly print you Drawing in required scale.

**3D modelling Basics –** Due to Accuracy of AutoCAD its 3D modelling is used to make the Front view, Cut View. Which we will learn during this part of course.



# ETABS

**ETABS** is a sophisticated, yet easy to use, special purpose analysis and design program developed specifically for building systems. Its features an intuitive and powerful graphical interface coupled with unmatched modeling, analytical, design, and detailing procedures. Quick and easy for simple structures, ETABS can also handle the largest and most complex building models, including a wide range of nonlinear behaviors necessary for performance based design, making it the tool of choice for structural engineers in the building industry.



## What the Course consist

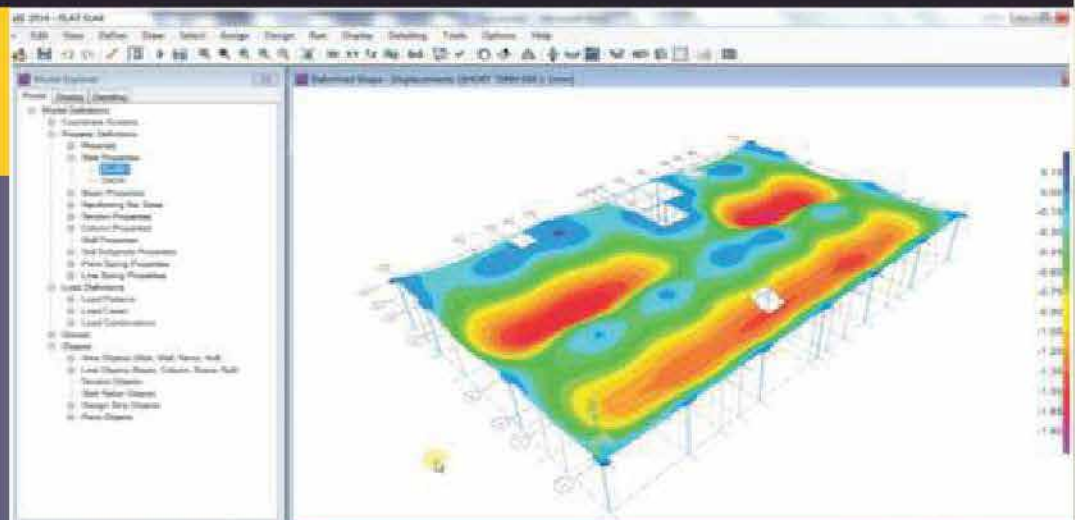
1. Drafting for model generation – It includes modelling the structural members of the buildings in ETABS as per the architectural drawings. In this duration we tend to learn the tools and commands required to model any structure.
2. Import – Having a good hand on AutoCAD then you can Draft the Model in it and then import it to ETABS. Or you can also bring Floor Plans just for reference from either AutoCAD or Revit Architecture.
3. Loading – ETABS includes various types of loading methods. It is very easy to apply Seismic or Wind Load on any type of structure.
4. Analysis – ETABS supports many types of high level analysis like the Response Spectrum analysis, Time History analysis, Pushover Analysis, P-Delta analysis, Auto-Construction Sequence Analysis and many more.
5. Results – The Capabilities of ETABS is not only related to analysis but the results are also very easy to read and understand. The results can also be easily segregated or can be exported to Excel with just one click.
6. Report – ETABS is also integrated with report Generation technique which helps us to generate report with required inputs and outputs of the model with shortest period of time. And we can also export the report to Microsoft Word so that you can edit it.

# SAFE

SAFE is the ultimate tool for designing concrete floor and foundation systems.

Laying out models is quick and efficient with the sophisticated drawing tools, or use one of the import options to bring in data from CAD, spreadsheet, or database programs (like ETABS or STAAD Pro.). Slabs or foundations can be of any shape, and can include edges shaped with circular and spline curves.

Post-tensioning may be included in both slabs and beams to balance a percentage of the self-weight. Suspended slabs can include flat, two-way, waffle, and ribbed framing systems. Models can have columns, braces, walls, and ramps connected from the floors above and below. Walls can be modeled as either straight or curved.



# QUANTITY SURVEYING

All construction projects have cost and a budget. The project becomes efficient and profitable when the costs are managed efficiently. It is in the management of the cost and budget that the role of the Quantity Surveyor becomes relevant and vital. From the moment a plan is drawn until the construction project has been completed, a quantity surveyor is likely to be involved in a legal, technical and financial capacity. He manages and control costs in construction projects which may involve use of a range of management procedures and technical tools to achieve this goal.

He prepares standardized schedule of quantities of various works involved, construction materials needed and labour force required for accomplishing the projects. This enables the management to put the works on tender, pick up the builder who bid lowest price and to prepare bill of quantities and cost on completion.

The technique of measuring quantities from drawings, sketches and specification prepared by architects and engineers for the preparation of Tender/Contract documents is known as taking off. The quantities so taken are used to prepare bills of quantities which usually are in accordance with a published standard method of measurement (SMM).



## Course Plan

### PROFESSIONAL COURSE

- ◆ Earthwork Estimation
- ◆ Building Construction Items Rate Analysis
- ◆ Estimation of Building Materials
- ◆ Quantity of each type of work
- ◆ Estimation of Labour Required
- ◆ Estimation of Machinery Required
- ◆ Determining Budget of Project (BOQ)
- ◆ Reading the District Schedule Rate (DSR).
- ◆ Project Work in MS-Excel

### ADVANCED COURSE

- ◆ Professional Course
- +
  - ◆ Estimation of
  - ◆ Minor bridges, Culverts
  - ◆ Retaining Walls
  - ◆ Highways
  - ◆ Overhead water tanks.
  - ◆ Contracts, contractors, forms, etc.

# STAAD Pro. V8i

**STAAD. Pro V8i** is a comprehensive and integrated finite element analysis and design offering, including a state-of-the-art user interface, visualization tools, and international design codes. It is capable of analyzing any structure exposed to static loading, a dynamic response and wind, earthquake.

## USER INTERFACE

Graphical tools. Models can be created quickly and accurately using structural grids, tooltips to highlight data, frame generators, and a structure wizard for standard structural frames Visualization. From simple wire frames for speed, accuracy, and ease of use to fully rendered 3D models for clear mass distribution and presentation.

All new advanced IDE style Editor with IntelliSense, Database Integration, and context sensitive help Meshing tools. Triangular or quadrilateral meshes created from zones within defined models or imported from DXF files Load generators. Seismic UBC, IBC, ASME wind and snow, bridge loading BEAVA Customizable interface with VBA tools. Create windows and tables to your own specifications. SQL query builder

## OBJECTS

Beams. Standard linear, curved and physical beams, compression/tension only, with databases of sections from around the world Plates. 3- or 4-noded 2D plates and surface objects with holes Solid. Solid 3D bricks

from 4- to 8-noded Supports. Foundation and multi-linear springs Loads. Full range of loads for static and dynamic analysis that can be defined explicitly or calculated using the wide range of load generators.

## ANALYSIS

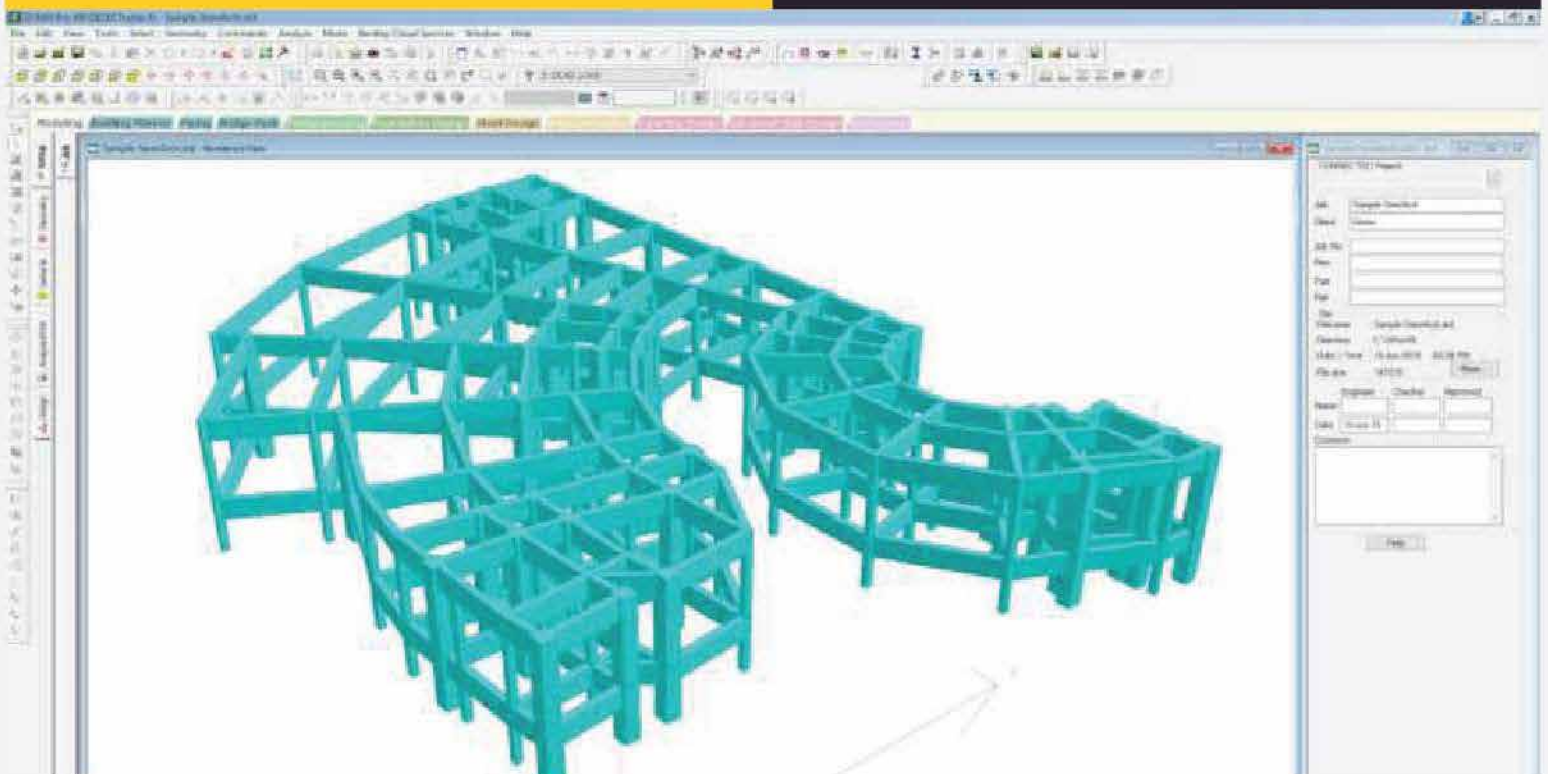
Elastic. Traditional first-order including iterative one-way analysis P-Delta. Both large and small P-Delta including stress-stiffening effects Imperfection. Account for imperfections in structural geometry Dynamic. Modal analysis including stress-stiffening eigensolution and steady-state options, time history, and response spectrums Basic and advanced solvers Pushover Analysis Code checking and design Steel Design Concrete Design. Shear wall designs for Indian.

## POST PROCESSING

The STAAD.Pro V8i interface is configured to suit the model to ease access to the required data Interactive graphics. Linked tables and windows to get direct feedback from one item in related windows Output file. Simple clear information to verify the analysis User report. Create high-quality documents Contoured stress plots. Using automatic or user-configured scales, colors, and limits Animations. View displacements, stress contours, or mode shapes dynamically

## STAAD.foundation V8i

The STAAD. Pro V8i support reactions & positions directly to design the structure foundations.



# 3DS MAX

## MODULE-1

Introducing 3Ds Max  
Importance of 3Ds Max for Civil/Architecture Students  
Creating all type of Standard, Extended, Primitive objects  
Creating Doors, Windows and Stairs according to parameters  
Creating all types of shapes like Circle, Line & Ellipse etc.  
Convert all solid objects into Editable mesh  
Convert all shapes in Editable Spline  
Creating Compound Objects  
Creating Doors, Windows frame, Pannel, Glasses using Boolean  
Creating Doors, Windows frame, Pannel, Glasses using Editor Spline

## MODULE- MODULE-2

Importing AutoCAD 3D Building Model File in 3Ds Max  
Applying Camera, Lights & Materials in 3D Model view  
Rendering Model View using Default Scan line Renderer  
Rendering Building View using Mental Ray Renderer

## MODULE- MODULE-3

Different types of Lens and Effects in Lights  
Creating Road Night views using Spot light and Lens effects

With path and without path Animation of an object in Particular frames  
Road Animation creating with Dummy and Camera  
Creating a big Fountain of Circular shape by Particle System and Space Warp  
Creating Bounce Effect of Water  
Creating Smoke Effect in Pooja Room by Particle system and Space Warp  
Creating a Farm House with Water Animation, Rotation of Fan Wheel

## MODULE- MODULE-4

Creating a scene with Fire Effects  
Creating Inner wall, Inner door with Frames in Auto CAD to Exterior Building Model  
Importing Exterior & Interior building model in 3Ds Max  
Setting the furniture in rooms according to its requirement

## MODULE- MODULE-5

Walk Through of Building in Exterior and Interior  
Creating AVI Movie  
Creating Blanket with Bed and Table Cloth Using some special modifiers  
Creating Curtains using special modifiers



# REVIT ARCHITECTURE SYLLABUS



## SESSION-1

- ◆ Introduction to REVIT
- ◆ Meaning of BIM (example)
- ◆ Components of Revit & Revit Architecture

## SESSION-2

- ◆ User interface
- ◆ Draw commands
- ◆ Modify commands

## SESSION-3

- ◆ Architecture Menu
- ◆ Wall options
- ◆ Edit type of wall

## SESSION-4

- ◆ Wall sweep
- ◆ Wall reveal
- ◆ Edit profile of wall

## SESSION-5

- ◆ Creation of plan
- ◆ Placement of door & window
- ◆ Edit type
- ◆ Component: place a component
- ◆ Column

## SESSION-6

- ◆ Roof
- ◆ Roof by footprint
- ◆ Examples

## SESSION-7

- ◆ Roof by extrusion
- ◆ Roof : soffit
- ◆ Roof : fascia
- ◆ Roof : Gutter

## SESSION-8

- ◆ Domer creation

## SESSION-9

- ◆ Ceiling
- ◆ Floor :architectural
- ◆ Floor :structural
- ◆ Floor :slab edge
- ◆ Curtain wall
- ◆ Exterior glazing
- ◆ Storefront
- ◆ Curtain grid
- ◆ Mullion

## SESSION-10

- ◆ Circulation
- ◆ Stair by component

## SESSION-11

- ◆ Stair by sketch

## SESSION-12

- ◆ Ramp
- ◆ Railing

## SESSION-13

- ◆ Model text
- ◆ Model line
- ◆ Model group

## SESSION-14

- ◆ Room & area
- ◆ Room, tag room, room separator
- ◆ Area, area boundary , tag area

# REVIT ARCHITECTURE SYLLABUS

## SESSION-15

- ◆ Creation of different type of areas
- ◆ Area tag
- ◆ Colour scheme
- ◆ Colour filled legend

## SESSION-16

Opening

- ◆ Opening by face
- ◆ Shaft opening
- ◆ Wall opening
- ◆ Vertical opening
- ◆ Domer opening

## SESSION-17

- ◆ Level creation
- ◆ Copy and paste of model at level
- ◆ Grid
- ◆ Work plane
- ◆ Reference plane

## SESSION-18

- ◆ Solid and void forms
- ◆ Extrusion
- ◆ Blend

## SESSION-19

- ◆ Revolve
- ◆ Sweep
- ◆ Swept blend

## SESSION-20

- ◆ Parametric family

## SESSION-21

- ◆ Non parametric family
- ◆ Hosted and unhosted family
- ◆ Ceiling hosted

## SESSION-22

- ◆ Wall hosted family
- ◆ Floor based family

## SESSION-23

- ◆ Inset menu
- ◆ Annotate menu

## SESSION-24

- ◆ Massing
- ◆ Place mass, in-place mass
- ◆ Wall by face
- ◆ Floor by face
- ◆ Roof by face
- ◆ Curtain system

## SESSION-25

- ◆ Conceptual mass
- ◆ Pattern based family

## SESSION-26

- ◆ Site
- ◆ Toposurface, contour table
- ◆ Split surface, merge surface, subregion
- ◆ Property line, graded region
- ◆ Site component, parking component, building pad

## SESSION-27

- ◆ Material
- ◆ Paint
- ◆ Camera view, export

## SESSION-28

- ◆ Location
- ◆ Solar study
- ◆ rendering

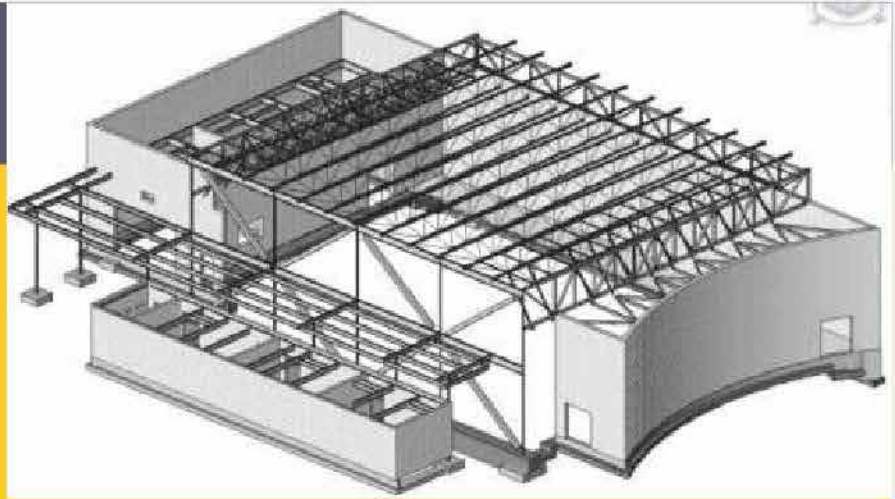
## SESSION-29

- ◆ Walkthrough
- ◆ Export
- ◆ Sheet
- ◆ Printing option

## SESSION-30

- ◆ Estimation and costing

# REVIT STRUCTURE



## Chapter 1: Introduction to BIM & Autodesk Revit

- 1.1 BIM and Autodesk Revit
- 1.2 Overview of the Interface
- 1.3 Starting Projects
- 1.4 Viewing Commands

## Chapter 2: Basic Sketching and Modify Tools

- 2.1 Using General Sketching Tools
- 2.2 Editing Elements
- 2.3 Working with Basic Modify Tools
- 2.4 Working with Additional Modify Tools

## Chapter 3: Structural Grids and Columns

- 3.1 Adding Structural Grids
- 3.2 Placing Structural Columns

## Chapter 4: Foundations

- 4.1 Modeling Walls
- 4.2 Adding Wall Footings
- 4.3 Creating Piers and Pilasters
- 4.4 Adding Isolated Footings

## Chapter 5: Structural Framing

- 5.1 Modeling Structural Framing
- 5.2 Modifying Structural Framing
- 5.3 Adding Trusses

## Chapter 6: Working with Views

- 6.1 Setting the View Display
- 6.2 Duplicating Views
- 6.3 Adding Callout Views
- 6.4 Elevations and Sections

## Chapter 7: Adding Structural Slabs

- 7.1 Modeling Structural Slabs
- 7.2 Creating Shaft Openings

## Chapter 8: Structural Reinforcement

- 8.1 Structural Reinforcement
- 8.2 Adding Rebar
- 8.3 Modifying Rebar
- 8.4 Reinforcing Walls, Floors, and Slabs

## Chapter 9: Structural Analysis

- 9.1 Preparing Projects for Structural Analysis
- 9.2 Viewing Analytical Models
- 9.3 Adjusting Analytical Models
- 9.4 Placing Loads

## Chapter 10: Project - Concrete Structure

- 10.1 Start a Structural Project
- 10.2 Create Foundation Elements
- 10.3 Frame a Concrete Structure

## Chapter 11: Creating Construction Documents

- 11.1 Setting Up Sheets
- 11.2 Placing and Modifying Views on Sheets
- 11.3 Printing Sheets

## Chapter 12: Annotating Construction Documents

- 12.1 Working with Dimensions
- 12.2 Working with Text
- 12.3 Adding Tags
- 12.4 Adding Detail Lines and Symbols
- 12.5 Creating Legends

## Chapter 13: Creating Details

- 13.1 Setting Up Detail Views
- 13.2 Adding Detail Components
- 13.3 Annotating Details

## Chapter 14: Scheduling

- 14.1 Structural Schedules
- 14.2 Graphical Column Schedules
- 14.3 Working with Schedules

# BIM-Revit MEP, Revit Architecture, Revit Structure, Navisworks

**Autodesk Revit is building information modeling [ BIM ] software for architects, structural engineers, MEP engineers, Designers and contractors.**

It allows users to design a building and structure and its components in 3D, annotate the model with 2D Drafting elements and access building information from the building models database.

**Understanding The Basics** – Understanding the concepts , using the Revit MEP user, interface, parts of the Revit Interface, Modifying the view, performing common tasks.

**Getting Started With MEP Projects**—Creating an MEP project, linking projects, creating and applying a view template, Modifying system settings, Modifying general system options, specifying file locations, specifying spelling options, Modifying snap settings, creating a mechanical system.

**Planning Mechanical System**—Preparing spaces, placing spaces, placing a space in an open area, placing a multi-level space, Viewing zones in the system browser, Creating zones on a single level, creating zones on multiple levels, working with the Analytical Model, Analyzing Heating and cooling Loads, creating a zone color scheme, creating an airflow schedule.

**Designing Mechanical Air Systems** – Placing Hosted Air Terminals, placing Non-Hosted Air Terminals, creating secondary supply Air systems, Creating ductwork for secondary supply Air system, Manually creating Ductwork.

**Designing A Mechanical Piping System** – Adding Mechanical Equipment, creating a piping system, Adding pipe using Auto Layout, Adding pipe using Manual Layout, Adding valves , sizing pipe , Inspecting the system, checking piping systems, creating a Mechanical system.

**Planning An Electrical System** – Specifying Electrical settings , Defining Required Lighting , Creating colour Fills and schedules.

**Designing An Electrical System** – Adding Lighting Fixtures Using schedules & colour Fills, Modifying the IES Data of Lighting Fixtures, placing switches, Junction Boxes and

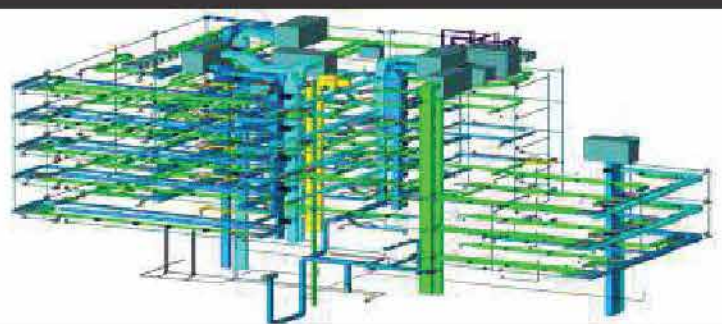
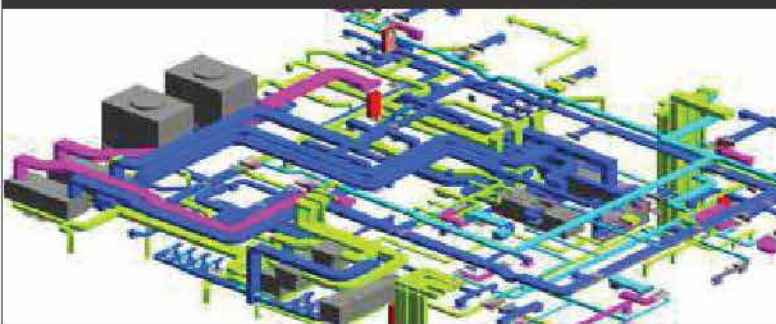
Receptacles, Creating Lighting circuits with wire , creating lighting circuits without wire, creating a switch system, creating power loads, Balancing wire size and breaker service , creating a panel schedule, checking your Design, creating a Electrical system.

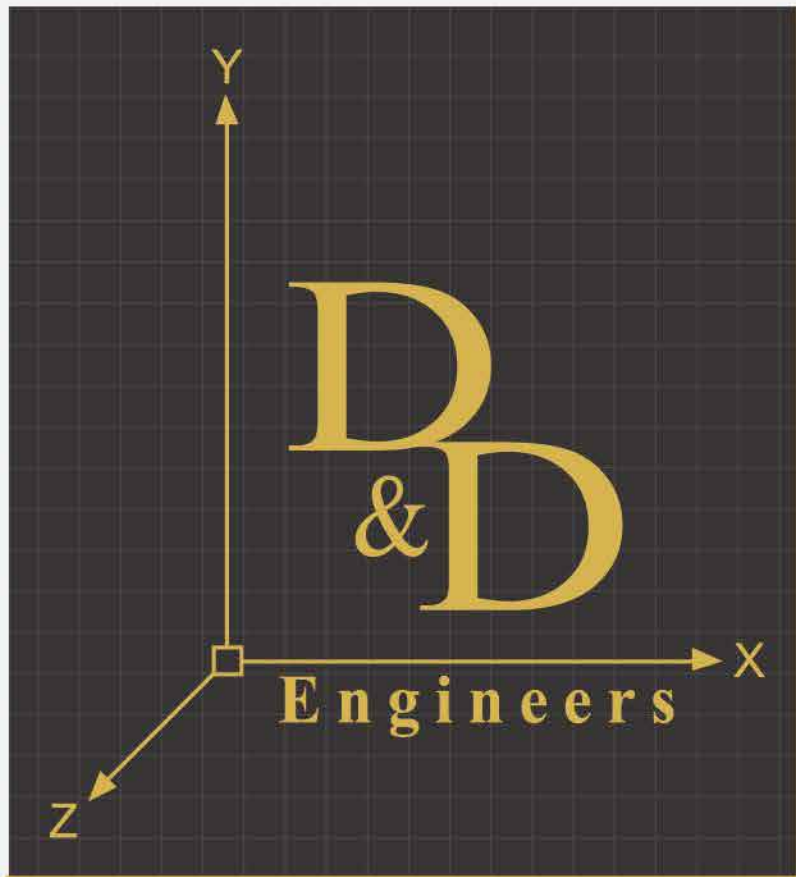
**Working With Annotations And Dimensions** – Creating Annotations, creating Dimensions, creating a legend. Detailing—Creating a Model-Based Electrical Riser Diagram Detail, creating Detail Wiring , creating a Model-Based Isometric Detail, Drafting components, Importing and Exporting a CAD Drawing.

**Navisworks** : Autodesk, Navisworks, Manage software is a comprehensive project review solution that supports coordination, analysis and communication of design intent and construct ability. Interference management tools help design and construction professionals anticipate and avoid potential problems before construction begins, minimizing expensive and rework.

**Autodesk Revit** is building information modelling software for architects, landscape architects, structural engineers, mechanical, electrical, and plumbing (MEP) engineers, designers and contractors. The software allows users to design a building and structure and its components in 3D, annotate the model with 2D drafting elements, and access building information from the building model's database. Revit is 4D building information modeling capable with tools to plan and track various stages in the building's lifecycle, from concept to construction and later maintenance and/or demolition.

**Syllabus Covers:** ♦ Working Environment ♦ Level & Grid Creation ♦ Model Line & Modification Tools ♦ Wall Creation Architecture Element ♦ Floor & Slab Creation ♦ Roof Creation ♦ Creating Opening ♦ Ceiling, Furniture Layout & Group ♦ Creation of Railing & Ramp ♦ Creation of Stair ♦ Annotations in Revit Project ♦ Detailing & Drafting Views ♦ Import, Export & Linking Files ♦ Sheet Creation ♦ 3d view & section cut ♦ Exterior design ♦ Interior design ♦ Family Creation ♦ Massing ♦ Schedules & Quantities ♦ Orient to View & other view Options ♦ Carpet Area Plan & Area Plan ♦ Design Option ♦ Topography & Site Components ♦ Sun Setting For View & Solar study [video] ♦ Materials, Camera Views, Render, Walkthrough [video] ♦ Manage Projects & Various Options.





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