BIM Diploma – Mechanical (Revit – Navisworks)

Description

BIM is one of the most important ways to work inside offices and engineering companies, because of its advantages. Through this course we work on 2 programs, they are:

- Revit
- Navis Works

In this diploma you learn how to use these programs and link them together to get their benefits in the construction management field

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Course structure:

BIM Diploma   65 hour
                     21 lectures

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resourcing, text books and reading material:

We recommend the following resources:
- Autodesk Revit 2023 BIM Management
- Exploring Autodesk Revit 2022 for MEP

Web resources:
- https://www.autodesk.com/products/autocad/overview
- http://seek.autodesk.com/
- https://help.autodesk.com/view/RVT/2023/ENU/
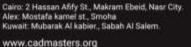- https://help.autodesk.com/view/NAV/2022/ENU

Prerequisites:

- Basic knowledge and skills about using computers.
- Basic project management and scheduling knowledge is recommended.
- Civil engineering background is recommended

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Grading:

Attendance	40%
Assignments	60%

To pass the course and receive both Autodesk certificate & CAD MASTERS certificate you should
- Attend at least 80% of course hours
- Score more than 70% as a total score

Course Objectives:

1. Understand technical architectural drawings
2. Ability to apply BIM codes
3. Recognize BIM tools.
4. Ability to use programs efficiently.
5. Link the programs together
6. Produce the done work in professional way.

Course Outline:

This course including the following:

Technical Track:
Technical Track: 1-
Revit:

Getting started with MEP projects
- Creating Project.
- Linking Revit Links.
- Modifying visibility of the Revit link.
- Understanding work sharing concepts (Extracted from the Advanced Level).
- Preparing central file (Extracted from the Advanced Level).
- Preparing the local file (s). (Extracted from the Advanced Level).
- Creating and Applying a View Template
- Modifying System Settings
- Creating a Mechanical System
- Planning Mechanical (HVAC) Systems.
- Understanding spaces.
- Placing spaces.
- Editing spaces.
- Modifying spaces' properties
- Creating zones.
- Adding /removing spaces to/from zones.
- Modifying zones' properties.
- Understanding the analytical model.

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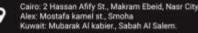Kuwait: Mubarak Al kabier., Sabah Al Salem.

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- Working with analytical model.
- Performing cooling and heating loads calculations.
- Cooling and heating calculations report.
- Understanding and working with schedules.
- Preparing air flow schedule.
- Spaces color fill as per calculated air flow
- Designing Mechanical Air Systems
- Understanding hosted and non-hosted families.
- Understanding and modifying the mechanical settings for ducts and pipes.
- Placing hosted and non-hosted air terminals.
- Placing air handling equipment.
- Creating duct works using generate layout.
- Manually creating duct work.
- Preparing the isometric duct works.
- Designing a Mechanical Piping System
- Adding mechanical equipment.
- Creating a piping system.
- Adding pipe using generate layout.
- Adding valves. Sizing Pipes.
- Inspecting the system.
- Preparing the piping isometric piping diagrams.
- Preparing the 3D sections.
- Creating an Electrical System
- Planning an Electrical System.
- Specifying electrical (wires, cable trays and conduits) settings.
- Defining required lighting levels.
- Preparing required LUX levels schedule.
- Working with key schedules.
- Creating color fills for LUX levels.
- Designing an Electrical System
- Adding hosted and non-hosted lighting fixtures.
- Modifying lighting fixtures properties.
- Placing switches, junction boxes and receptacles.
- Creating lighting circuits.
- Creating a switch system.
- Creating power systems.
- Creating and modifying panel schedule templates.
- Creating a panel schedule.
- Checking the design.
- Creating a Plumbing System
- Planning a Plumbing System.

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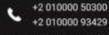Kuwait: Mubarak Al kabier., Sabah Al Salem.

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- Configuring a plumbing and piping system.
- Designing a Plumbing System
- Adding sanitary fixtures.
- Creating a sanitary system.
- Preparing drainage isometric.
- Creating cold water system.
- Creating hot water system.
- Preparing cold and hot water isometric.
- Creating a Fire Protection System
- Planning a Fire Protection System.
- Specifying pipe settings.
- Determining zone requirements.
- Creating a sprinkler design schedule.
- Designing a Fire Protection System
- Adding sprinklers.
- Creating a piping system using generate layout.
- Creating the piping system manually.
- Modifying pipe diameters.
- Documenting a Project
- Creating documentation views.
- Working with annotations and dimensions.
- Detailing.
- Preparing bill of quantities for all electromechanical disciplines.
- Modifying the project browser settings.
- Working with filters.
- Creating project parameters.
- Creating shared parameters.
- Understanding family classification.
- Editing an existing annotation family.
- Creating your own annotation family.
- Understanding reference planes.
- Understanding family types.
- Understanding family geometry commands.
- Adding parameters and dimensions to families.
- Using formulas in families' creation.
- Creating you first simple family.
- Inserting families into models.
- Understanding connectors and their use within families.

Editing an existing mechanical equipment family

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- Creating a mechanical equipment family.
- Editing an existing electrical equipment family.
- Creating an electrical equipment family.
- Controlling family visibility for different detail levels.
- Importing 3d elements to use as Revit families.
- How to get your own families over the web.

2- Navisworks

Unit 1:
- What is BIM? How it works for Construction Industry?
- Project Delivery Systems Using BIM.
- Product Overview and file formats.
- Workspace Overview
- Opening and Appending Files in Navisworks
- Saving, Merging, and Refreshing Files

Unit 2:
- Using Navigation Tools
- Absolute Coordinate Display
- The Navisworks Engine
- Performance Indicators
- Selection Tree and Selecting Objects
- View the Selection Tree
- Setting Selection Resolution and Sorting Structures
- Hiding Objects and Overriding Materials
- Change Object Color and Transparency
- Object Properties
- Add a New Custom Property Tab and Property
- Enable and Customize Smart Tags
- Measuring and Moving Objects
- Using the Measuring Tools
- Moving an Item

Unit 3:
- Selection and Search Sets
- Create a Selection Set
- Conducting a Property Object Search
- Viewpoints
- Add and Organize Viewpoints
- Comments and Redlining
- Adding Redline Markups and a Redline Tag

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- Sectioning
- Sectioning a Model, Section Planes & Section Box

Unit 4:

- TimeLiner Overview
- Open and Run a TimeLiner Simulation
- Run a Basic TimeLiner Simulation
- Creating Tasks
- Creating Tasks Manually
- Import Tasks from External Project File
- Linking to a Project File
- Importing Tasks
- TimeLiner Simulation
- Simulation Control Bar
- Using Simulation
- Configuring and Defining a Simulation
- The Configure Options
- Customizing a Simulation
- Simulation Export
- Exporting a TimeLiner Simulation
- Exporting a Simulation

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