

PLUMBING AND DRAINAGE SYSTEM DESIGN COURSE

WHO IS THIS COURSE FOR?

- Plumbing Designers
- Mechanical Design Engineers and Technologists
- Plant Supervisors
- Water maintenance personnel
- Building Officials and Inspectors
- Operators and Contractors
- Engineering or Architecture Professionals
- Engineering or Architecture graduating students
- Plumbing engineers and technologists

HOW LONG IS THE COURSE?

The course is prepared into two parts:

1. Indoor training

This course will be taking 2 months maximum that are purposed to heighten your capability of using a AutoCAD MEP software in building services design, three days a week using evening hours or weekend only.

2. Project study

After the indoor training, you will be given a realistic project study to deliver within 1 month, to study and deliver it successfully to confirm your competency to be certified.

You have to present the progress to the supervisor once a week till you completely deliver it.

WHO TEACHES THIS COURSE?

The trainer of this course must be an AutoCAD MEP professional, certified by Autodesk. Find the appointed trainer(s) of this course by clicking the following link <http://nzizatraining.ac.rw/trainers/>

COURSE OBJECTIVE:

This course takes you on the complete steps in your learning journey, teaching you from the fundamental skills you need to start designing plumbing and drainage systems with AutoCAD MEP with accuracy and precision. Project success also depends on solid documentation and communication with project teams and you will discover these best-practice workflows to use in AutoCAD.

This professional training course is intended to provide you with the following specific knowledge and skills:

Plumbing Criteria: Economy, reliability, materials & construction, and protection of critical applications

Drainage Systems: Sanitary systems, sumps & sump pumps, interceptors, chemical wastes, backwater valves, food waste grinders, floor drains, storm water drainage, downspouts, sub-soil drains, P-traps, venting requirements and combined sanitary and storm drainage system

Water Supply Systems: Criteria for supply water service, water hammer arrestors, booster systems, hydro-pneumatic system guidelines, hot water systems, type of units and circulation schemes, water drinking systems, types of units and design

Insulation of Plumbing Systems: Insulation requirements for the unfired water storage heaters, electric heaters, re-circulated systems and miscellaneous systems

Fuel Gas Systems: Safety precautions of system pressure, pressure regulator location, seismic consideration and ventilation

Energy Conservation: Guidelines for Eco-friendly Energy efficient plumbing construction system to be considered while executing design, that means using less power and less water which translates to lower bills like pipes protection guide, low-flow guide, dual flush toilet conversation guide, tankless water heater guide, solar water heater guide and low flow shower heads guide.

This course will cover the development of drawings of plumbing and drainage system design according to ASHRAE standard code. Practice your new skills and test your knowledge with the exercises, challenge assignments, and a final project study that go with the course.

WHAT WILL BE THE OUTCOME?

AutoCAD MEP helps you build the systems—mechanical, electrical, and plumbing—that connect buildings to the outside world. This course will help you draft, design, and document these systems using MEP's powerful toolset. After participating in this course, you will be able to know the key design considerations for building plumbing and drainage systems, Apply codes and standards, Make sound materials selection decisions, Select specific equipment and corresponding piping, and understand why and when specialized piping is used.

After the mastery we train, the participants will be certified by Autodesk.

TRAINING COURSE CONTENT

NOTE: It can be updated anytime to match market needs

Lesson 1: Getting started: Registering Autodesk software license, instructor's guide and understanding plumbing and drainage systems design sector.

Lesson 2: Introduction to the course: building services and plumbing explanation and definitions, international bodies for standards, explanation of plumbing fixtures.

Lesson 3: Introduction to CAD: introduction to CAD and AutoCAD Basics: The Old Days, Modern Drafting, Scale Factors (SI & Imperial), Understanding Font Size, Model/Paper Display, Setting up a Drawing, Layers, Blocks & X-Refs, X-Refs: Attachment Vs Overlay. Nesting, X-Refs: Paths, Cropping, Exploring, etc., Text and Text Styles, SHX Vs True Type Fonts, M-Text and M-Leaders, Model, Work Space and Layout, Viewports, Tables, Excel, Images & Others, Plotting & Publishing.

Lesson 4: Introduction to AutoCAD MEP: Differentiating AutoCAD Vs AutoCAD MEP, Why AutoCAD MEP? overview of Systems, Piping, Duct-work, Model Template, System Definitions, plumbing drawing Organization, Constructing View pot Sheets, Project Structure Considerations, Workspace, Tool Palettes, executing drawings in layers, Pipe Routing Preferences (Intermediate), linking plumbing drawing specifications with Catalog (Basic), Piping Tips and Tricks (with tools like Compass, Ortho, etc.)

Lesson 5: Advanced level practices on the piping systems: creating and modification of different pipe systems (Domestic Water, Sanitary Drain, Sanitary Vent, Firefighting pipes Protection system like Sprinklers, hose reels, hydrants etc.).

Lesson 6: Checks and reviews: Review of Piping Routing Preferences, checking Water pipes working Pressure Systems, Working Drainage Systems leakages, and Plumbing Fixtures and Equipment, Septic tank pipes level, soak away pits storage capacity, Dispersion trenches designing, Storm Water Drainage in buildings, water storage Tank design methodology, External water supply for building guides. Garden water supply & fountain water pipe sizing, Calculation of storage tank, Garden water fountain designing, Fountain pump selection.

Lesson 9: Drainage System: Basic principles of drainage systems, Types of Drainage Pipes & Drainage pipe sizing, Drainage fittings for toilet and bathroom, Typical piping and fitting connection details, Sewage Treatment Plant Room Size and capacity calculation, Rain water harvesting tank Sizing, Storm water design and calculation.

Raw water tank Capacity calculation, Types of sewage system:

- a) Separate system
- b) Partially separate system
- c) Combined system, Plumbing BOQ preparation / Qty take off / Estimation.

Lesson 10: Collaboration: Running an interference check, multiple disciplines and linked files, and interference report.

Lesson 11: Pick your final project:

End!