Member of Green Building Council of India & ISHRAE

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DESIGN & DRAFT ENGINEERING INSTITUTE

AN MEP CENTER

Training | Placement Assistance | Mock Interviews | Site Visits

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ENGINEERING SERVICES

OUR VISION & MISSION

VISION

To be recognized as the best choice for MEP Training Services and to enrich the lives of the Engineering professionals through our creativity built environments.

MISSION

To provide the highest level of training, services, quality & expertise that creates value for our community, clients & budding Engineers and to develop a long - term relationship based on performance, reliability, honesty, fairness and integrity.

INTRODUCTION

Design & Draft Engineering institute is a progressive firm offering Comprehensive Training and placement Services for Engineers and Engineering students. The Certification courses are in the field of MEP, BIM, construction support and building-oriented services. We are a young and aggressive firm continuously evolving and reshaping ourselves through our innovative & distinct approach as we always strive to stay ahead of the rapidly changing markets, advancing technologies and expanding our students and industrial needs.

In addition we Provide building-oriented services. Our services comprise of 2D Drawings and 3D modelling covering comprehensive BIM Services, Drafting Services, MEP and Structural Domains. We intend to leverage regional conditions to meet international quality and performance standards. Our consistent attention to quality, on time delivery, client satisfaction and a clear perspective of long-term relationships have ensured that we have globally satisfied clients. We provide coordinated services between Architectural, Structural, and MEP services under-one-roof to reduce coordination efforts & conflicts between the disciplines for the client. If you only know one thing about us, let it be that D&D Engineers will satisfy all of your unique and varied engineering needs with quality. On-time & within the budget because we believe it's not only "About us" it's "about you"as well.

ABOUT MEP

TODAY is the world of architecture and building where complex buildings are being erected day by day. Taller structures have even become the icon of development of a country. This answers the great importance given to construction related works and the huge demand for efficient and experienced workers in the field. In most developed and fast growing countries there are huge demands for experienced MEP workers on huge projects such as the construction of airports, hospitals, schools, shopping malls and such where central air conditioning system is applied.

MEP is also known as Building Services in the Construction Industry. The Mechanical aspect focuses on Heating, Ventilation and Air Conditioning (HVAC), whereas the Electrical aspect focuses on supplying power to all the services in a building including lighting, appliances etc., and the main focus of Plumbing is to deliver hot and cold water and the draining of waste water it is also known as PHE (Public Health Engineering).

Heating, Ventilation, and Air Conditioning (HVAC) comes under Mechanical part which is responsible for Design, Drafting, Installing and Maintaining of Air Conditioning units. Smoke controlling and exhausting comes ventilation. Coming to the Electrical part, it's about Electrical- Building Services, equipment selection, installation and maintenance. Under the Plumbing, we have domestic water supply & distribution, which includes internal and external water supply, fire restraint systems etc..

It is very much important to be highly skilled in dealing with the modern technologies in the Mechanical, Electrical and Plumbing works of buildings since the building systems have become more integrated and the industry embraces sustainable and environmental concepts into design. Besides having the most updated and authentic information, the onsite experience is also vital to build up quality craftsmanship. MEP courses thus yearn to provide the best training under these areas. Here is the importance of MEP courses who is a strong presence in the field for years with many numbers of brilliant projects to count in their portfolio.

HVAC
(Heating, Ventilation & Air Conditioning)
Designing & Drafting

1] FUNDAMENTALS

Introduction to Building Construction {Civil and MEP services} Introduction to Heating Ventilation and Air Conditioning.

Basic of heat transfer : Modes of heat transfer in a building {Conduction, convection and Radiation},Forms of heat {Sensible and Latent Heat},Temperature TON of Refrigeration and unit conversion {manually conversion software}.

Standards and codes used in HVAC Study on psychometric charts [manual and ASRAE Analysis software]

Properties of Air {Altitude, DBT, WBT, %RH, DPT, Humidity Ratio& Enthalpy}.

Study on Refrigerants : Types of Refrigerants, Evaporating & Condensing Properties of Refrigerants.

Types of Refrigeration Cycles & its Components : Vapour Absorption Refrigeration System, Types of compression refrigeration system ,Types of Compressors, Condenser, Expansion valve & Evaporator coil.

Types of Air Conditioning System: Non-central AC, Package AC System, VRE/VRF System Chilled Water System.

Types of Fans & its Application system ,Fan Laws Types of Pumps, Pump Laws Pump In Series and Parallel.

2] HVAC DESIGN CALCULATION

Cooling & Heating Load Calculation : General & E-20 Manual Calculation ,Ventilation And Infiltration Load Calculation, Winter Load Calculation Ventilation System Designing ,Fresh Air Handling Unit Designing As Per ASHRAE 62.1., Restaurant/ Resident Kitchen Ventilation System Designing as per ASHRAE 90.1, Non-Central and Central Toilet Exhaust Calculations as per ASHRAE 62.1, Car Parking Ventilation System Designing (Impulse & Induction Fan System), Design of Stairwell Pressurization System , Design Of Smoke Management System.

Study on Air Distribution System (SMACNA & DW-142) : Types of Ducts, dust fitting s, Dampers, Flexible ducts, classification of duct (low, medium & high pressure), Duct Gauge Selection, Comparison Between Different Shapes of Duct, Duct Fabrication ,Insulation & Installation Procedure, Type of Duct Materials , Calculation of Total Sheet Required, For Duct Fabrication & Estimating Duct Weight in Kgs , Selection of Duct Gauges & Thickness , Hanger Spacing , Hanger Road Diameter and Angel Support Size, Types of Air Terminal Device, Selection And Sizing of Air Terminal Device[Manually]

Duct Designing Methods (Manual Calculations): Equal Friction Method , Velocity Reduction Method , Static Regain Method.

Pipe Sizing Methods: Refrigerant Pipe Sizing, Chilled Water Pipe Sizing , Study on Chilled Water Systems, Types & Application of Chillers, AHU's , FCU's & FAHU's , Chilled Water Pipe Sizing by ASHRAE Standards, Types of Valves & its Connection, Open Loop & Closed Loop System , Primary and Secondary Pump System ,Common Header Pipe Sizing , Hydraulic Calculation for Pump Selection, Expansion Tank Sizing ,Air Separator, Pump Curves , NPSH Calculation for Pumps, Advance Psychometric Analysis, Determine Mix Air Temperature , Calculate The Flow of Air , ESHF , Ton Of Refrigeration, Design of CAV & VAC System.

- Air Balancing System and Pressurization of Space.
- Desert Cooler Selection
- District Cooling System
- Cooling Tower Selection, Evaporation Losses, Drift Losses Calculation , Pump Head Calculation
- Coil Selection
- ESP Calculation
- Variable Refrigerant Volume [VRV] System Designing
- Dehumidifier Selection [Silica Gel & Desiccant DH]
- HRW-Heat Recovery System [Rotor Wheel , Heat Pipe, Run Around Coil & Plate Heat Exchanger]
- Estimation and Costing
- Cold Storage Designing,
- Silencer - Sound Attenuator Designing
- BMS (Understanding Sequence of Operation for HVAC System)
- Energy Conservation Measure (ESM)-Under Floor Air Distribution System (UFAD), Chilled Beam System, Radiant Cooling, Geothermal Cooling, Thermal Energy Storage System (TES) or ICE on Pipe System Demand Control Ventilation (DCV), EAT- Earth Air Tunnel System , Cooling Without Air Conditioning & Passive Cooling System Designing
- Green in HVAC System Designing-Energy Modeling Concept .

HVAC
(Heating, Ventilation & Air Conditioning)
Designing & Drafting

3] EQUIPMENT SELECTION
Selection of Cooling Tower , Selection of Chillers , AHU and FCU Classification and Selection , Package Unit Selection DX Unit Selection of Dehumidifier , Pump Selection , Fan Selection

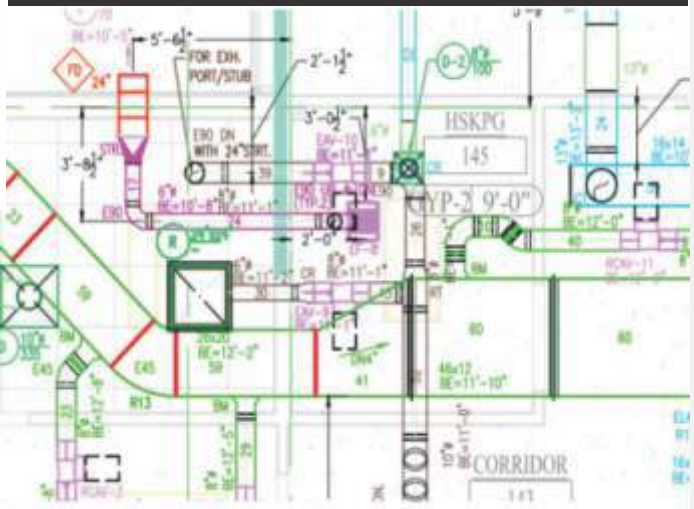
4] SOFTWARE DESIGNING

Cooling and Heating Load Calculation Using Hourly Analysis Programme [HAP] & Elite Software , Calculation of Duct Sizes by Mcquay Duct Sizer and Duct Checker Software , Calculation of Chilled Water Pipe Sizes by Mcquay Pipe Sizer Software , Air Terminal [Grills, Diffusers, Register, LBG-Linear Bar Grills], SLSD-Supply Linear Slot Diffuser] Selection By Using BETA Programme , HVAC Equipment [Package AC, Chillers, AHU,FCU Etc.] Selection by Zamil Software , VRV Equipment Selection by TOSHIBA Software.

5] ESTIMATION AND COSTING OF PROJECT

Understanding The Tendering Requirments, Quantity Take Off , Preparing Inquiry For Suppliers & Finalizing The Suppliers , Final Billing & Quotations Finalization.

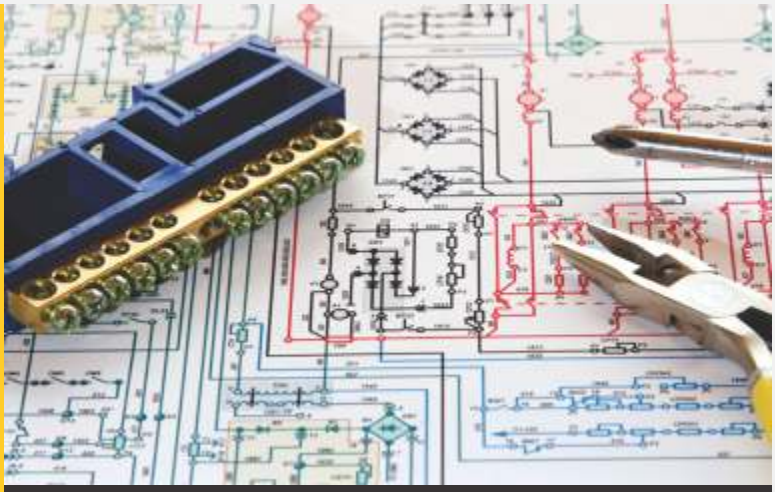
6] PROJECT PROCUREMENT WORK
Preparation Of Purchase Order, Quotation Evaluation Sheet.



7] HVAC DRAFTING

Representation of Concepts Design Drawing , Design Drawing & Shop Drawing , Preparation Of Detail Shop Drawing of Air-Conditioning & Ventilation Ducts, Chilled Water Pipes & Duct Fittings-Elbows, TEE's, WYE, Dampers-Volume Control Dampers (FD) Etc. & Duct Support, Representation of Duct Pipe Levels, Slope, Flow Direction, BOD's, BOP''s Typical Detail of Chillers, AHU,S, FCU's, Pumps, Valves-Isolating, Regulating, NRV, Strainer Etc., Representation of Section Drawings.

ELECTRICAL DESIGNING AND DRAFTING



1] FUNDAMENTALS

Introduction To Mep & Scope Of Electrical Designing Electrical & Drafting, Duties And Roles of A Electrical Design Engineer & Draftsman, General Concept of Electrical Generation, Transmission & Distribution, Brief Description Of Resistive, Inductive & Capacitive Loads, Different Types of Equipments And Their Loads As Per Standard Specifications, Practical Exposure To Lighting, Power, Fire Alarm, Emergency Lighting Electrical Services , House Wiring Concepts.

2] ELECTRICAL DESIGN CALCULATION LOW POWER

Lighting, Types of Light (GLS,FTL,CFL, LED,MVL Etc.) And Application, Light Selection By Manual Method , CGLUX Software, DIALUX For Calculation Of Number Of Light Fixtures Based On LUX Level .

FANS

Types And Selection Of Ceiling Fans In A Space As Per Standards, Types & Selection of Exhaust Fans Based On Air Changes Per Hour, Socket Design As Per NEC Code.

POWER SERVICE

Power Socket Selection, Selection of Motors, Load Scheduling For (Single House, Apartment, High Rise, Industrial, Commercial Buildings) Common Area, Open Area And Load Calculations.

CABELS

Brief Description of Conductors, Strands, Cores And Insulation of A Cable, Description of Armoured & Un-Armoured Cables, Selection of Cables Using Indian Standards, Selection Of Cable Trays According To Us National Electrical Code, Sizing Of Conduits, Trunking, Raceways And Trenches. Voltage Drop Calculations Using. A] Indian Standards. B] NEC Standards, C] British Standards. Short Circuit Calculation In A Building.

SWITCH GEARS [CIRCUIT BREAKERS]

A Brief Description Of Fuse, MCB's, MCCB's, Air, Vacuum, Oil And Sf6 Circuit Breakers, Selection Of Circuit Breakers Based On International Electro Technical Commission [IEC] & European Standards, Selection Of ELCB.

PANEL BOARDS

Description of Different Types Of Panel Boards (MDB, SMDB, SDB..., Etc.)

TRANSFORMER

Type, Inter Connections & Selection of Transformers Depending on Load & Losses, Transformer Room Sizing.

CAPACITOR BANKS

Sizing of Capacitor Bank For Power Factor Improvement, Bus Bar Calculations And Selection of Bus Bar For High Rise Buildings.

SINGLE LINE DIAGRAM

Description of Single Line Diagram For Individual , Residential, Commercial, Industrial And Hospitalized Buildings.

EARTHING

Earthlings Calculation & Selection of Earthlings According To The Requirement of Buildings.

LIGHTING ARRESTERS

Introduction to Lighting Arresters And Design Calculations to Adopt Lightning Protection System .

ELECTRICAL DESIGNING & DRAFTING

UPS SELECTION
Calculations For The Selection of Ups To Emergency Lighting Services, Calculations For The Selection of Ups To Lifts/Elevators .

GENERATORS
Calculation For The Selection Of Diesel Generators .

LOW CURRENT SYSTEM
Close Circuit Television (CCTV)– Description About The Types Of Cameras And Placing Of Cameras At Required Locations, Public Addressable System – Calculations For The Selection Of Number Of Speakers In A Space, Fire Fighting Services – Load Calculations And Cable Sizing For Fire Alarm System (I.E.Smoke Detector, Heat Detector & Horns), Communication, TV, Telephone, Intercom, & Internet Networking And Selection of Types of Cable For Them, Electrical Engineers Work With HVAC Professionals (MCC), Open Area Calculations (Power And Lighting).

3] SOFTWARE DESIGNING
RELUX, CG LUX DIALUX (LUX Level Calculations), ANIXTER (Cable Sizing), Tray Cad (Cable Tray Routing), Master Converter (For Conversion) .

4] ESTIMATION AND COSTING OF PROJECT
Understanding The Tendering Requirements, Quantity Take Off, Preparing Inquiry For Suppliers & Finalizing The Suppliers. Final Billing & Quotations Finalization.

5] PROJECT PROCUREMENT WORK
Preparation of Purchase Orders, Quotations Evaluation Sheet.

6] ELECTRICAL DRAUGHTING
Representation Of Concepts Design Drawing , Design Drawing & Shop Drawing, Symbols And Legends: Lamps , Fans Sockets , Exhaust Fans , A/C , Geyser Etc.,

Drawing Details : Single Line Drawing [SLD] , Lighting Layout , CCTV Layout , Public Addressable Layout , Fire Alarm Layout , Communication , Cable Tray ,Bus Bar Layouts , Bus Duct Riser Drawing .

Standards: Designing As Per Electrical Standards: NEC, BS, DEWA, ADEWA, IEC, NEMA, NFPA Etc.

FIRE FIGHTING SYSTEM DESIGNING

* Introduction to Fire system
* Classification of Fire, Fire Dynamics
* Fire Extinguisher- Types and classification
* Hazards Classification- Light, Ordinary, Extra and Special
* Fire Strategy Planning
* Sprinklers-Types of sprinklers, Pendant, Upright, Sidewall.
* Fire Sprinkler System- Types: a) Wet Pipe System. b) Dry Pipe System c) Pre-action Pipe System. d) Deluge System. e) Hybrid Pipe System
* Stand Pipe System, Fire hose Cabinets and Fire Hydrants
* Fire Water Pump (main pump, jockey pump, and diesel pump)
* Fire Alarm system design
* Smoke Detectors
* Heat Detectors
* Standards- NFPA13, NFPA14 NFPA20, NFPA22, UBC, NBC.

PLUMBING DESIGNING AND DRAFTING

Introduction to Building construction (Civil & MEP services) Introduction to plumbing system.
Cold water, sewage system, Hot water circulating system, Irrigation system, storm water system

Common sanitary fixture details:
Lavatories, water closet, showers, sinks, bathtubs , Bidets Urinals , Floor drains , layout of sanitary fixtures in toilets .

Formula for flow through pipes :
Hazen formula, Reynolds number (Laminar and Turbulent Flow)

Drainage system :
Soil pipe system, Waste pipe system, vent pipe system, Types of pumps, pump laws , pump in series and parallel.

2] PLUMBING DESIGN CALCULATION
Cold water system
Classification-Up feed, Down Feed and Down feed, Elevated Roof tank (storage cistern) or overhead tank sizing, cold water pipe sizing in building as per flow rate and fixture Unit Method (WFU), minimum number of smaller diameters water pipes that can be connected to bigger pipes. plumbers chart for pipe sizing, booster pump sizing & transfer, pump sizing [HP & watts], Auto pneumatic, system & pressure tank sizing, External water supply , pipe sizing.

Hot water system
Hot water system Designing, Classification- Individual or Centralised, Estimating Hot water Demand, Hot water pipe sizing , Hot water circulation pump Design, Up feed system, Down feed system & combination of Up feed and down feed system, solar water heater (Energy saving calculation).

Irrigation system
Garden water supply and fountain, Garden water supply and fountain pipe sizing, calculation of storage tank, Garden water fountain designing & pump selection.

Drainage system
Soil and waste water drain calculation in building vertical stack, branch drain/Discharge pipe, horizontal drain, Fixture unit rating, Maximum number of discharge unit allowed in stack, Design of horizontal drains by discharge unit method (DFU), Invert level & slope calculation, sump pit sizing, submersible sump pump sizing, Design of septic tank, soak away pits, Dispersion trenches, oil and grease Interceptor designing, Designing of common appurtenances, Inspection chambers & junction manholes, External foul water drainage for building.

Storm water
Designing of storm water Drainage system in building, Classification sizing of rain water gutters , External storm water drainage system Designing.

Vent System design
Types- a)Wet Vent System, b)Waste Vent System, c) Back to Back Vent System, d)Circuit Vent System, e)Loop Vent System, f) Individual Vent System

3] ESTIMATION AND COSTING OF PROJECT
Understanding the tendering requirements, Quantity take off, preparing inquiry for suppliers & Finalizing the suppliers, Final Billing & Quotations finalization.

4] PLUMBING DRAFTING
a) Representation of concepts Design Drawing, Design Drawing & shop Drawing. b) Location maps. c) Site plan. d) plan of roof. e) floor plan of the building. f) Enlarge floor plan of toilet kitchen, plan elevation & cross section of structures including reinforcement details. g) Detailing of plumbing services and preparing plumbing Drawing, Isometric Drawings. h) Riser Diagram.

Site Installation procedure:
Testing, Adjusting, Balancing concept & process. Installation & Inspection. safety Measures. Pressure Testing. Testing & commissioning . Tracking list.

REFERENCE STANDARDS
NBS, NSPC, NPC, IPC & ASPE standards.

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.

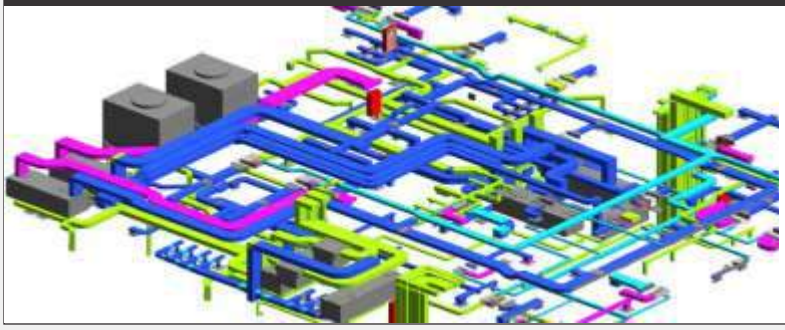
Designing An Electrical System – Adding Lighting Fixtures Using schedules & colour Fills, Modifying the IES Data of Lighting Fixtures, placing switches, Junction Boxes and Receptacles, Creating Lighting circuits with wire , creating lighting circuits without wire, creating a switch system, creating power loads, Balancing wire size and breaker service , creating a panel schedule, checking your Design, creating a Electrical system.

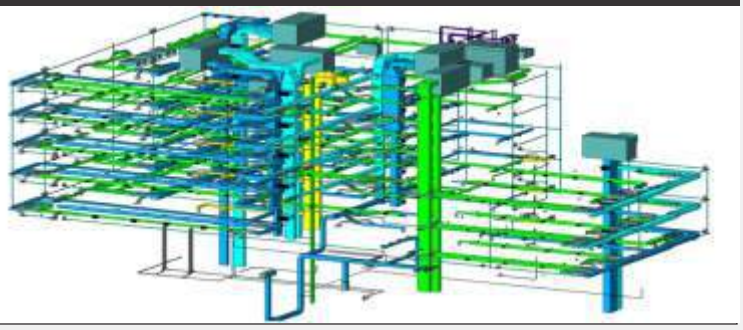
Working With Annotations And Dimensions – Creating Annotations, creating Dimensions, creating a legend. Detailing–Creating a Model-Based Electrical Riser Diagram Detail, creating Detail Wiring , creating a Model-Based Isometric Detail, Drafting components, Importing and Exporting a CAD Drawing.

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 Creationw 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.





A True Industrial Training With Site Visits

Seminars, Workshops & Classroom Training

OUR STUDENT'S SUCCESS STORY

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(REVIT MEP ENGINEER)
DOHA, QATAR

AHMED SALIM SAMEDA
(HVAC ENGINEER)
UAE

ROHAN KULKARNI
(BIM ENGINEER)
NAVI MUMBAI

PALLAVI SHINDE
(BIM ENGINEER)
THANE WEST

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PUNE

SANDIP THORAT
(HVAC DESIGN ENGINEER)
PUNE

GOVIND MATE
(ADP ENGINEER)
BANER PUNE

SHAIKH AASIF
(BIM ENGINEER)
NAVI MUMBAI

VISHAL GHATGE
(BIM MODELER)
AHMEDABAD, GUJRAT

RAHUL KERE
(HVAC SITE ENGINEER)
THANE

NILESH WANKHEDE
(HVAC ENGINEER)
AURANGABAD

SHAIKH ARSHAD
(HVAC SITE ENGINEER)
DHULE

ABDULLAH CHAUSH
(BIM MODELLER)
BANGLOR

GANESH T. SAMGISKAR
(BIM MODELLER)
PUNE

SWAPNIL THAKUR
(BIM ENGINEER)
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AAMIR FURQAN
(HVAC ENGINEER)
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SHUBAM ADHAV
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(MUMBAI

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