

### ELECTRIC POWER SYSTEMS ENGINEERING COMPANY EPS TRAINING CENTER



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كشركة رائدة في مجال الإستشارات والدراسات الهندسية بخبرة تزيد عن ٣٠ عام في مشاريع محطات التوليد والنقل ونظم التوزيع للطاقة الكهربية نقدم لكم دورات احترافية ومتكاملة في مجالات تصميم محطات المحولات والوقاية في منظومة القوى الكهربية وشبكات الجهد المتوسط بالتعاون مع محاضرين في كبرى الشركات العالمية



We developed and added new contents to our diplomas and started new diplomas for the first time.

You can get the details of each diploma by following the page and visiting our site. Join the schedule and register your seat right now

# **A BRIEF KNOWLEDGE ABOUT THE** FIELD OF ENGINEERING **CONSULTANCIES (POWER STATION, DISTRIBUTIONS NETWORKS AND TRANSMISSION** LINES & CABLES)



### A BRIEF KNOWLEDGE ABOUT THE FIELD OF ENGINEERING **CONSULTANCIES (POWER STATION, DISTRIBUTIONS NETWORKS AND TRANSMISSION LINES & CABLES)**



#### **COURSE OVERVIEW**

Taking the Power System Fundamentals for Engineers training course will help you to understand the basic concepts of electricity generation, circuit analysis, power plants, generators, power delivery and power market.



### A BRIEF KNOWLEDGE ABOUT THE FIELD OF ENGINEERING CONSULTANCIES (POWER STATION, DISTRIBUTIONS NETWORKS AND TRANSMISSION LINES & CABLES)

## **00** COURSE OVERVIEW

Power System Fundamental training course simply teaches you the history behind the power generation and lays down the basic theory of the circuit analysis in AC/DC systems. Different components of a power system including the generation units (power plants), transmission level (transmission lines and substations) and customers (loads) will be discussed.



#### Main Topics:

- 1- Egyptian Electricity Network Technical Overview:
  - ntroduction to Power Generation.
  - Various types of power generation and the contribution of each type.
  - Inter connection with adjacent countries networks.
  - Generation Capacity and load demand statistics for Egyptian Network.
- 2- Power Generation Plant technical Overview
  - General Layout of Power Generation Plant
  - Main components of each type of power generation plants.
  - Renewable Energy Integration in Egyptian Network
- 3- High Voltage Transmission Network and Utility Overview.
  - Electrical Power Transmission System.
  - Transmission Voltage Levels and national Grid overview
  - OHTL or Underground Cables Usage/constraints.
  - Copper and AL comparison/ constraints
- 4- High voltage substation Overview
  - Substation switchgears and bus bar arrangements
  - General Layout OF High voltage Substation and main component technical Overview.



#### Main Topics:

- 5- Medium voltage distribution network overview.
  - Distribution substations
  - Distribution feeder supply configurations radial, ring and mesh networks
  - Switchgear construction and components
- 6- Distribution & utilization system in the commercial buildings overview
  - Luminaire system concepts
  - Heating \ Air condition systems concepts
  - MV Power Design Concepts and selection
  - Design concepts and Calculations in LV, MV Distribution networks
  - Conceptual and Detailed design submittals for a real project
- 7- Module 4: Electrical Measurements and Instrument Transformers for Switchgear
  - Measurement of electrical parameters
  - Basics of smart metering
  - Instrument transformers for switchgear metering and protection
- 8- Transformers and Earthing Considerations
  - Fundamentals of transformers
  - Construction of transformer
  - Transformer types
  - Transformer accessories
  - Need for earthing, direct and indirect shocks, touch and step potential
  - Transformer earthing considerations





# FUNDAMENTAL OF HIGH VOLTAGE

3

# FUNDAMENTAL OF HIGH VOLTAGE SUBSTATION

# <u>01</u>



#### **COURSE OVERVIEW**

This training course is suitable for electrical power department students and fresh graduated electrical engineers which help them be qualified to have an opportunity in the market

#### Main Topics:

#### Introduction to High Voltage Network Projects

2.Types of Substations (AIS, GIS, Mobile) and difference between them. 3. Substation main equipmenttechnical overview :

-High voltage Circuit Breaker main technical parameters.

- -Disconnectors \ Earthing switches types.
- -Current transformer Technical Parameters.
- -Voltage transformer technical parameters.
- -Power Transformer main technical parameters

-Surge arrestortechnical parameters.

4. S.ubstation Bus-bar different configurations.

#### SUBSTATION PRIMARY SYSTEM

5. Substation General Layout description.

6.Primary design principles "GIS room , Transformer area , control building, and outdoor equipment arrangement"

7. Substation Earthing Grid Principles

8.Substation lightning system Principles.

#### SUBSTATION SECONDARY SYSTEM

9.CT\VT sizing calculations and Adequacy check.

10.Maneuvering philosophy and sequence of operation.



#### Main Topics:

11.Interlocking \ inter-tipping logic

12.Substation measuring and protection SLD.

13.Main control circuits"TCS, C.B tripping, C.B closing\Anti pumping, Synchro Check, Disconnectors Mechanism...Etc."

14. Substation automation system general architecture.

#### SUBSTATION AUXILIARY SYSTEMS

15. Auxiliary supply AC system SLD.

16. Auxiliary supply DC systems configuration.

17.Substation Battery\ charger sizing Calculations.

#### **EPS** Company

# SUBSTATION PRIMARY DESIGN AND GIS DIPLOMA

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# SUBSTATION PRIMARY DESIGN AND GIS DIPLOMA

# <u>02</u>



#### **COURSE OVERVIEW**

This training course is suitable for electrical power department students and fresh graduated electrical engineers which help them be qualified to have an opportunity in the market

#### Main Topics:

1- Primary Part:

Configuration of EHV & HV Substation (introduction, used for &types).

Substation general layout

(preparation steps, input data, design stage, locate substation equipment & building, check Electrical clearance, detailed design stage, sections drawing, 3D model simulation). Detailed single line diagram

(basic line diagram and detailed line diagram).

□ Gas insulated SWGR

(technical parameter for main high voltage equipment, current carrying parameter making, breaking &isolating parameter).

I Substation electro mechanical system (lighting, sockets, fire alarm, telephone system, mechanical system.... etc.)

Earthing system

(introduction, soil measurements report, manual design calculation, design input parameters, earthing conductor size, touch & step voltage, main grid drawing preparation & equipment earthing). Lighting protection system

(introduction & risk assessment, system component, substation area classification, determine the coverage area for each structural& prepare lighting protection layout). Substation cabling **Register Now** 

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#### Main Topics:

(cable design, cable laying criteria, current carrying capacity, cables list, equipment list, cable raceway, raceway types & relative application, raceway filling calculation report, civil guide drawings/information and prepare drawing).

AC/DC system

(Auxiliary transformer design and sizing, ACDB, CB and cable sizing and design component and sizing). 2. GIS Part:

□ GIS types according to rated voltage.

I Model of GIS in Egypt.

GIS models (500KV,220KV and 66 KV)

Design procedures.

□ SF6 Gas system. and SLD.

I Guarantee schedule.

Types of GIS drawings.

Internal construction of GIS along with photos and 3D model
Installation steps and testing.

Pre-& Post diploma assessments will be used to measure the effectiveness of this training.

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# SECONDARY DESIGN, PROTECTION, TESTING AND COMMISSIONING AND SUBSTATION AUTOMATION SYSTEM (SAS) OF HIGH VOLTAGE SUBSTATIONS (BASIC LEVEL)

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### SECONDARY DESIGN, PROTECTION, TESTING AND COMMISSIONING AND SUBSTATION AUTOMATION SYSTEM (SAS) OF HIGH VOLTAGE SUBSTATIONS (BASIC LEVEL)

### <u>03</u>



#### **COURSE OVERVIEW**

Power System Protection & SAS are considered as one of the most promising future careers in and outside egypt, for this purpose we prepare a complete diploma for all electrical engineering students, fresh graduates, juniors engineers.

Our instructor has +10 years of professional experience in the control and Protection field. Pre-& Post course assessments will be used to measure the effectiveness of this training

#### Main Topics:

- 1- Testing and commissioning
- S/S Control and protection Introduction
- Substation Components
- Current Transformer
- Description Potential Transformer
- □ Circuit Breakers
- Disconnector and Earth Switch
- Protection relay
- Types of faults in power system network
- I protection theories (over current, differential, distance, bus bar protection ... etc.).
- Bus Bar protection (Low impedance, High Impedance) Concept. I Simulation training (by Omicron Test Universe) on Basic Protection relay Case Study with the following function:
- i. Over Current protection
- ii. Earth Fault protection
- iii. Circuit breaker failure protection



#### Main Topics:

- 2- Base Design
- Operational Single Line Diagram (OSLD) & Protection Single Line Diagram (PLD).
- CT&VT Sizing Calculations for Metering and Protection Cores
- Interlocking Logic Diagram,
- Point List (SAS, TFR, SOE, SCADA)
- 3- Detail Design for schematics
- Local control Cabinet Panels (+LCC) function scheme
- Line feeder Protection Panels function scheme
- Transformer Protection Panels function scheme
- 4- Substation Automation System
- Introduction to Substation Automation System.
- SAS According to IEC 61850.
- Network Topology.
- Levels of Control.
- a. Process Level.
- b. Bay Level.
- c. Station Level.
- IEC 61850 standard.



**SECONDA**RY DESIGN, **COMMISSIONING AND** 

# **PROTECTION, TESTING AND SUBSTATION AUTOMATION SYSTEM (SAS) OF HIGH VOLTAGE SUBSTATIONS (ADVANCED)**

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### SECONDARY DESIGN, PROTECTION, TESTING AND COMMISSIONING AND SUBSTATION AUTOMATION SYSTEM (SAS) OF HIGH VOLTAGE SUBSTATIONS (ADVANCED)

### <u>04</u>



#### **COURSE OVERVIEW**

Power System Protection & SAS are considered as one of the most promising future careers in and outside egypt, for this purpose we prepare a complete diploma, Our instructor has +10 years of professional experience in the control and Protection field. Pre-& Post course assessments will be used to measure the effectiveness of this training on Students whonseek to learn about high voltage substations.

#### Main Topics:

- 1- Testing and commissioning
- **Protection relay**
- Types of faults in power system network
- Protection theories (over current, differential, distance, bus bar protection ... etc.).
- Bus Bar protection (Low impedance, High Impedance) Concept.
- Simulation training on OHTL Protection relay Case Study (MICOM P546) with the following function:
- Line Differential
- Distance Fun. with Distance Communication Scheme (POTT, PUTT....)
- Directional Concept & Directional Earth Fault
- Over Current curves
- Circuit breaker failure protect
- 2- Detail Design for schematics
- Bus Bar Low Impedance Protection Panels function scheme
- Bus Bar High Impedance Protection Panels function scheme

#### Main Topics:

- 3-Substation Automation System
- Introduction to Substation Automation System.
- SAS According to IEC 61850.
- Network Topology.
- Levels of Control.
- a. Process Level.
- b. Bay Level.
- c. Station Level. IEC 61850 standard.
- ICD, CID and SCD files
- CID file creation



# SUBSTATION AUTOMATION SYSTEM [SAS]





# SUBSTATION AUTOMATION SYSTEM (SAS)





#### **COURSE OVERVIEW**

Substation automation is the integration of existing substation devices and a network infrastructure. By integrating primary devices networked secondary devices, the with substation can perform automatic industrial tasks such as data acquisition, device control, and event recording.

**SAS** enable utilities to manage the flow of electricity in transmission and distribution grids. SAS systems are important tools for the utilities since they protect and control substations and ensure grid stability.

Main Topics:

1.Introduction

2.SAS According to IEC 61850

3.IED (Intelligent Electronic Device)

4. Communication

5.IEC 61850 Standard Protocols



# FUNDAMENTALS OF MV NETWORK COMPONENTS



# FUNDAMENTALS OF MV NETWORK COMPONENTS

<u>06</u>



#### **COURSE OVERVIEW**

This Course is specifically related to electrical Distribution systems; the course is structured to provide fundamental introduction into network components (Switchgears, Cables, Transformers, Rig Main Units, followed by maintenance and testing. In addition, the seminar will focus on System Safety Rules & Operation and Isolation.

This training course is suitable for electrical power department students and fresh graduated electrical engineers which help them be qualified to have an opportunity in the market

#### Main Topics:

Safety System Rules

□ Safe working practices with electricity.

Safety Clearance

I Tough & Step Potentials

I Isolation of 11 & 33 KV equipments

I Types & Filling of Safely documents

Equipment earthing & System Earthing

I Technical overview of LV Equipments.

I Technical overview of MV Switchgears.

I Technical overview of Transformers.

I Technical overview of Power cables

I Testing of power cables

Condition Monitoring & Preventive Maintenance of All Electrical Equipment's



# TRANSFORMER, PRINCIPALS, STRUCTURE, TYPES, INSTALLATION, TESTING AND APPLICATION

# TRANSFORMER, PRINCIPALS, STRUCTURE, TYPES, INSTALLATION, TESTING AND APPLICATION



#### **COURSE OVERVIEW**

Transformers are critical components in utility distribution systems and power plant, their performance significantly affects the overall performance of the system and playing very important role in network reliability. This workshop is designed to update participants with the latest standards of testing, commissioning and diagnosis of Transformers and to present some of the more common and updated aspects of corrective and preventive maintenance. This course describes the essential information that any electrical students or electrical engineer, who works in distribution needs to know about Transformers construction. principals. installation, testing, and application.

#### Main Topics:

- Transformers Principles and fundamentals
- Structure of Transformers
- Method of Transformers Cooling
- Types of Transformer
- How A Transformer Works
- Tap Changers
- Transformer Oil
- Transformer Losses & Efficiency
- Transformer Name Plate Indications
- Testing Procedures of Transformers
- Operation & Maintenance of Transformers
- Transformer Overhauling
- Earhing of Neutral point



# **MEDIUM VOLTAGE POWER CABLES** CONSTRUCTION, SPLICING TESTING, **DIAGNOSIS & FAULT** LOCATION TRAINING

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# MEDIUM VOLTAGE POWER CABLES CONSTRUCTION, SPLICING TESTING, DIAGNOSIS & FAULT LOCATION TRAINING

### <u>08</u>



#### **COURSE OVERVIEW**

Power Cables are critical components in utility distribution systems and power plant, their performance significantly affects the overall performance of the system and playing very important role in network reliability. This workshop is designed to update participants with the latest standards of testing, commissioning and diagnosis of MV power cables and to present some of the more common and updated aspects of corrective and preventive maintenance. This course describes the essential information that any electrical student or electrical engineer, who works in distribution needs to know about cable construction, splicing, installation, selection testing, diagnosis and fault location.

#### Main Topics:

- Construction of electrical power cables
- Different types of cables for various voltage ratings and manufacturing aspects
- Different types of insulation materials
- Importance of stress control
- Cable Bonding
- Cable Installation & Ampacity
- The basic principles of cable jointing and terminations
- Different methods of cable termination and jointing and choosing an appropriate type for every application
- Different types of connectors and connection methods
- Installation procedures of MV joint & termination
- Testing of cables (Type test, Factory Acceptance Test & Site Acceptance Test)
- Operation & Maintenance of MV cables
- Failures, failure analysis and failure prediction
- Different methods of cable fault location.
- Cable Identification & Tracing

**Register Now** 

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# **ETAP DIPLOMA FOR POWER SYSTEM ANALYSIS** FOR ALL TYPES AND SIZES **OF ELECTRICAL INDUSTRIES**

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# ETAP DIPLOMA FOR POWER SYSTEM ANALYSIS FOR ALL TYPES AND SIZES OF ELECTRICAL INDUSTRIES

<u>09</u>



#### **COURSE OVERVIEW**

ETAP software provides electrical student or electrical engineers, operators, and managers a platform for continuous functionality from modeling to operation. ETAP training is a practical DEMO software session to learn about the latest features and capabilities of ETAP enterprise solution software for electric power systems. Sessions are presented with extensive experience in ETAP and power systems.ETAP provides a solution for power system design, analysis, and operation needs. ETAP offers a comprehensive suite of analysis modules that can be configured to suit specific requirements.

#### Main Topics:

1- Etap overview

How to draw single line diagram through etap, how to attach any file to etap, how to link etap with any site on internet, how to use colors and layers for showing single line diagram, print setup, project toolbar, system toolbar and mode toolbar. 2- Elements

Bus, two winding transformers, cable, power grid, generator, induction motor, synch motor, static load, dynamic load, capacitor, phase adaptor, composite motor, composite network, fuse, low voltage circuit breaker, medium voltage circuit breaker, contactor and ups. 3– Presentations

How to present single line diagram and how to create difference presentations for same single line diagram.

4- Configurations

How to make difference scenarios for same single line diagram (two out of three as example). 5- Revisions

How to revise your single line diagram data and edit without changing in the base data.

#### Main Topics:

Course modules: Module # 1LOAD FLOW STUDY Upon successful completion of this Learning Outcome Guide, you will be able to understand Voltage drop calculation. Power factor calculation.

- Load and source current calculation.
- Cable sizing.
- Protective earthling cable sizing
- Transformer sizing.
- Load flow module (info, loading, adjustment and alert).
- How to run load flow through etap Module # 2 SHORT CIRCUIT STUDY

Upon successful completion of this Learning Outcome Guide, you will be able to understand

- IEC 60909 (What is meaning of short circuit, purpose of short circuit, types of short circuit and short circuit calculations)
- Short circuit module (info, standard, adjustment, alert).
- How to run three phase (symmetrical and asymmetrical) and single-phase short circuit calculation through etap.
- Fuse, low and medium voltage circuit breaker sizing.

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#### Main Topics:

- Module # 3 MOTOR ACCELERATION
- Upon successful completion of this Learning Outcome Guide, you will be able to understand
- A-Effect of starting current on system.
- **B-** Static method.
- C-Dynamic method.
- D- Motor starting plot.
- E- How to modeling motor.
- Module # 4 STAR Device Coordination and Selectivity
- Upon successful completion of this Learning Outcome Guide, you will be able to understand
- Instrument Transformers: CTs and VTs
- Instrument system types.
- Selection of instrument devices.
- the co-ordination procedures necessary to ensure dependable and secure, selective protection
- Types of fuses
- Using fuse in discrimination
- Difference between fuses and circuit breakers
- Fuses selection guide
- Instrument devices installation.
- Protective Relay Design
- Protection devices Sequence of Operation
- STAR "Device Coordination" Auto STAR

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#### Main Topics:

Module # 5 Arc Flash Studies

Upon successful completion of this Learning Outcome Guide, you will be able to understand

- Electrical arcs and their dangerous effects on people
- What is the Arc?
- How can the arc occur?
- Arc flash standards
- Arc flash hazard analysis
- Arc Exposure Energy Basics
- Industry Standards and Regulations
- Calculation of the flash protection boundary
- Limited approach boundary entrance recommendations
- Modes of operation scenarios
- Personal protective equipment selection
- Daily wear clothes
- Labeling of Electrical Equipment (Dangerous, warning and cautions)
- Labels colure indication
- working distance from arc flash source
- Proper PPE, distance-dependent from possible threat
- Robotic circuit breakers removal
- Electrical Equipment Isolation

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#### Main Topics:

Module # 6 System grounding

Upon successful completion of this Learning Outcome Guide, you will be able to understand

- Fast analysis of irregular large-scale renewable ground grid application
- Two-layer soil configuration plus surface material
- Soil measurement
- Table of potentials at the earth's surface
- External boundary extensions
- Variable weight & temperature options
- Compare allowable currents against fault currents
- User-definable conductor library
- Ground grid configurations showing conductor & rod plots
- Compare potentials to tolerable limits

Report step, touch, & absolute potentials inside & outside grid area

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#### **EPS TRAINING CENTER**



## SOLAR ENERGY



#### **COURSE OVERVIEW**

In This Training course the participats will be able to Learn technical concepts and economics of PV systems -Hands-on design and simulation of PV systems using my Excel tools -Hands-on design and simulation of PV systems using the software PV\*Syst

## EPS Training Center Main Topics:

- 1. Introduction
  - 1.1. Basics of electricity
  - 1.2. Renewable energy
  - 1.3. Sun and the radiation
- 2. CSP technology and its type
- 3. Solar water heating systems
  - 3.1. Types of solar heaters
  - 3.2. Construction of each of them
  - 3.3. Advantages and disadvantage of each them
  - 3.4. Site survey and planning for the system
- 4. Photovoltaic
  - 4.1. PV technology
  - 4.2. Equivalent circuit analysis & electrical characteristic
  - 4.3. PV panel characteristics
  - 4.4. How to read the data sheet?



#### Main Topics:

- 1.5. Off grid system
  - 5.1. Concept of off grid system
  - 5.2. Main component of off grid system (inverter, batteries, c.c)
    - 5.2.1. construction of each component and idea of work
    - 5.2.2. types of each component and advantage and disadvantages of each type
    - 5.2.3. reading the data sheet for each component
  - 5.3. Manual design of off grid system
  - 5.4. Design of off grid system using my special excel sheet
  - 5.5. Design of many systems in different scales
- 6. On grid system
  - 6.1. Concept of on grid system
  - 6.2. Main component of on grid systems
    - 6.2.1. construction of each component and idea of work
    - 6.2.2. types of each component and advantage and disadvantages of each type
    - 6.2.3. reading the data sheet for each component
  - 6.3. Manual design of on grid system
- 6.4. Design of on grid system using my special excel sheet



#### Main Topics:

- 7. Water pumping system
  - 7.1. Concept of water pumping system
  - 7.2. Main component of water pumping systems
  - 7.2.1. construction of each component and idea of work
  - 7.2.2. types of each component and advantage and disadvantages of each type
  - 7.2.3. reading the data sheet for each component
  - 7.3. Manual design of water pumping system
  - 7.4. Design of on grid system using my special excel sheet
- 8. Wiring and protection of pv systems (for both dc and ac sides)
  - 8.1. Important of each component and its job in the system
  - 8.2. Manual calculation of them 8.3. Calculation using excel sheet
- 9. pv syst
  - 9.1. Introduction to the program
  - 9.2. Simulation of on grid system
  - 9.3. Simulation of off grid system
  - 9.4. Simulation of water pumping system



#### Main Topics:

10. Pricing, Preparing technical and financial offers for pv systems

- 11. Financial study for pv systems
- 12. How to make a site survey for a system?
- 13. How to manage the installation of your system (steps and time planning)



#### **EPS TRAINING CENTER**



# MATLAB PROGRAMMING, **SINULINK AND APP** DESIGNER (GUI)

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# MATLAB PROGRAMMING, SIMULINK AND APP DESIGNER (GUI) COURSE OVERVIEW

Matlab Programming is one of the most important technical programming languages and skills today. In this course, we will start learning Matlab from a beginner level and slowly ease our way into more advanced topics and programs. This course is a general Matlab Programming training, and it means that regardless of your major and field of study; you can benefit from this course, so much so that Google's former svp/product management Jonathan Rosenberg recognized it as the only skill you need on your resume to be able to work at Google. Matlab Programming is an easy and understandable programming language and is an excellent choice for those who want to learn to program for the first time. Engineering companies often use Matlab to prototype and validate their ideas before committing to building it with other programs like Java, Python, C, and C++. Knowing Matlab will give you a competitive advantage in your career.



#### Main Topics:

- The MATLAB Environment
- Matrices and Operators
- M-Files and Scripts
- User-Defined Functions
- Decision making
- Loops
- Data types
- 2D and 3D plots
- SIMULINK introduction
- Simulink Libraries
- Power Systems Libraries
- App Designer introduction
- Simple GUI programs
- Compiling/Packaging Apps
- App designer basic components
- Startup and Helper functions
- Axes and Tables handling



#### **Register Now**

51

#### **EPS TRAINING CENTER**





## AUTOCAD COURSE

## <u>12</u>



#### **COURSE OVERVIEW**

This diploma for all electrical engineering students, fresh graduates, juniors engineers, Design. Planning of power system, Site & Testing Engineers

Our instructor has +10 years of professional experience in the control and Protection field. Pre-& Post course assessments will be used to measure the effectiveness of this training

#### Main Topics:

- Introduction To CAD World
- CAD Opening & Interface.
- CAD Options.
- Lines, Object Snap, Erase , Circle.
- Move, Copy, Trim, Divide, Point Style.
- Arc, Scale, Hatch, Rotate, Mirror.
- Offset, Layers, Layers Tool, Normal Block.
- Explode, Fillet
- Attribute Block, Burst, Text.
- Dimensions, Dimensions Style.
- View Ports.
- CAD Plotting Skills.



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# **REVIT-ELECTRICAL MODELLING**

## <u>13</u>



#### **COURSE OVERVIEW**

tray, CAD, etc. Electrical System.

This course helps us Understand the basics of Electrical System like; Lighting Circuit, Electrical Devices, Switch Systems, Power System, cable tray, conduit System and annotating construction documents like sheets, 2D CAD, 3D

It also provides information on understanding Work-sharing, creating and modifying panel schedules as per design or requirement.

Electrical information plays a vital role in Lighting, Wiring and Circuiting. Using BIM, we can easily understand, what is Electrical and the Electrical System.

#### Main Topics:

- Introduction To BIM World
- BIM Vs CAD Technology
- BIM Engineer & BIM Manager Roles.
- BIM Software & Hardware Requirements
- Revit Opening & Interface.
- Revit Options.
- Revit Families Types & Properties
- Revit Families Loading.
- View & Projects Templates.
- Revit Links
- Electrical Settings & Spaces.
- Lighting & Electrical Fixtures.
- Electrical Circuits Creation.
- Revit Filters.
- Panel Boards Schedules & Templates.
- Cable Trays & Ladders.
- Dimensions, Tags & Sections.



#### **Register Now**

57

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# BASIC OF COST ESTIMATION WORKS FOR ELECTRICAL WORKS

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## BASIC OF COST ESTIMATION WORKS FOR ELECTRICAL WORKS



#### **COURSE OVERVIEW**

In the world of electrical contracting, you have to estimate and submit bids in order to win projects and stay in business. This means bidding low enough to win against many competing electrical contractors, while high enough to cover all the project costs like labor, material, equipment rentals, subcontractors, and indirect cost or otherwise known as overhead required to run your business.

#### Main Topics:

- Importance of Cost Estimations
- Cost Estimates & Feasibility Studies
- Cost Estimation Phases & Classes
- Electrical Works Budgeting Methods
- Electrical Works Break Down Sheets Preparation
- Incoterms
- Labor Analysis
- Cost Estimation Review Techniques.





THE REPORT OF THE REPORT







#### دلوقتي تقدر تأكد حجز الدورات عن طريق دفع مبلغ الدورة بالكامل أو جزء من المبلغ عن طريق حساب للدفع من خلال ايداع بالبنك الأهلى المصري - فرع مصر الجديده رقم الحساب NBEGEGCX100 - السويفت كود : NBEGEGCX100 بأسم الشركة المصرية لهندسة نظم القوى الكهربائية. أو من خلال فودافون كاش على الرقم 091106706+ او من خلال الدفع المباشر في مقر الشركة المصرية لهندسة نظم القوى الكهربيه

Let us know if you need help!

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# THANK YOU

## JOIN US AND IMPROVE YOUR CAREER PATH

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