Basic electrical distribution design for industrial and commercial system

Fundamentals electrical concepts

Grounding/harmonics/power quality

Learn how to communicate effectively with engineers who are designing the upgrade or expansion of your plant’s electrical distribution

Focus on Basic Concepts

This most popular course focuses on the basic principles of industrial and commercial electrical power distribution design. Your expect trainer will first help you understand basic concepts for the direct current case and then extend them to single-phase and three-phase alternating current. They will also develop basic electrical concepts such as power factor, kVA, kW, and inductive loads.

Emphasis will be on understanding the basic phenomena rather than the rigorous mathematical derivations. Instruction will assume that you have no prior electrical engineering formal education but are currently working in the field.

Understand Electrical Principles

Electrical Energy is used everywhere affect every technical careers. This course will introduce some of the basics of electrical engineering theories & concepts. By participating in this course, you’ll gain a general understanding of the general concepts of electrical energy generation, transmission and distribution besides knowledge in the operating principles of relevant devices/equipments.

You will study

- Basic electrical concepts & definitions
- Utility generation, transmission and distribution
- System design philosophy
- Design procedures
- Electrical construction materials
- Grounding and power quality concepts
- Electric Machines

Duration  : 2 days
Time      : 9.00 am to 5.00 pm
Venue     : Hilton Hotel, PJ
TRAINERS’ PROFILE

MAIN SPEAKER:

PROF. DR. MAHMOUD MOGHAVVEMI

Professor, University of Malaya
BSc, MS, PhD, NYAS, MIEEE

Professor Dr. Mahmoud Moghavvemi graduated from the State University of New York (SUNY) at Buffalo with a B.Sc.(CIE) and B.Sc.(Electrical Engineering). He obtained his M.S degree from Bridgeport University and later on a Ph.D from the University Malaya. He worked as a consultant in Informatics Group of Colleges and Stamford College for their Electrical and Electronics Engineering programs, and in 1988 he founded and was appointed the Director of the INFORMATICS School of Engineering. Dr. Mahmoud is currently attached to the Department of Electrical Engineering, University of Malaya.

Prof. Mahmoud was a committee member in establishing the University of Malaya’s Bachelor of Engineering (Telecommunications) degree program and has also recently established the latest degree program in Computer Engineering. Besides teaching duties Dr. Mahmoud is actively involved in various research projects and has published in numerous technical journals. He is the founder and Director of University Malaya’s Centre of Research in Applied Electronics (CRAE) and has also received many awards in research and education. He is a member of the World Energy Council (France), IEEE (USA) and the New York Academy of Sciences.

FACILITATOR:

DR YANG SOO SIANG
BEng(Hons), MSc, PhD, MIEEE, MIEEE

Dr. Yang Soo Siang graduated with an honours degree in Electrical & Electronics Engineering, from the University of Sunderland, UK and had continued to post-graduate studies at the University of Bradford, UK, graduating with a Master’s degree in Control Engineering. Having spent some time in industry and in research at the University of Malaya (published several papers), he was awarded a scholarship to read for a doctoral degree at the Brunel University of West London. He is currently attached to the Department of Electrical Engineering, University of Malaya as a Lecturer.

WHO SHOULD ATTEND

- Architects, non-engineers and others responsible for the electrical and lighting systems in manufacturing plants and commercial and institutional buildings
- Plant engineers, electrical contractors and utility engineers
- Technical personnel who involves in the design or construction of electrical power systems but have not had a formal course in electrical engineering
- Junior Electrical Engineers, non-electrical engineers e.g. M&E engineers, mechanical engineers, civil engineers, chemical engineers…
- Consulting professionals, executives and sales person who involves in electrical project
- Engineers in Industrial, Government Offices working in Projects Evaluation and Costing
Course Outline

Basic Electrical Concepts & Definitions
- Voltage, current (DC & AC)
- Resistors
- Ohm’s law
- Power, watts
- RMS & average values
- Inductors
- Capacitors
- Three-phase systems – Wye & Delta
- Power factor

Utility Generation, Transmission & Distribution
- How power reaches your facility
- Single line diagrams
- Power quality

Power Quality and Harmonics
- Types of disturbances
- Harmonics
- Distribution techniques

Design Procedures
- Harmonics consideration
- Circuit protection

Grounding Concepts
- Grounding for Safety
- Grounding for equipment operation

System Design Philosophy
- Voltage Levels
- Over-current protection
  Fault calculations, interrupting ratings, coordination
- Feeder circuit design
- Load study/possible loads
  Load characteristics, load locations

Basic Electrical Distribution Systems
- Wire
- Raceways
- Motor control equipment
- Switchboards

Electrical Construction Materials
- Case studies

Motor Branch Circuit Design
- Motor protection
- Circuit protection

Service Design
- Commercial/industrial examples
- Utility constraints
- Equipments
- Switchboards
- Metering

Electric Machines

Electrical Cost Calculation & Evaluation
- Application types

Advanced concepts

Take Home Problem assignment
- Case study assignment
- Exercises

Class Problem & Solution
- Group discussion
- Q & A session

Reminder

Kindly bring your scientific calculator to this class.
REGISTRATION DETAILS

Registration
To register, please fill in the registration form and return it with your cheque or bank draft in favor of “Comfori Sdn. Bhd.”.

Fees and Payment

<table>
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<tr>
<th>Participant</th>
<th>Fee</th>
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</thead>
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<tr>
<td>Individual Price</td>
<td>RM2,500 each</td>
</tr>
<tr>
<td>Group Price (for three or more participants)</td>
<td>RM2,300 each</td>
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*Please note that with the government effort to improve employees’ technical skills, HRDF (Human Resource Development Fund) provides incentive to re-claim or reimburse the training fees. For full information, please refer to this website: [http://www.hrdnet.gov.my/bi.html](http://www.hrdnet.gov.my/bi.html).*

"CLAIMABLE UNDER SBL SCHEME"

Fees must be sent with registration form in advance and include tuition, tea breaks, lunches and course notes.

Once we receive your registration, a place will be reserved for you.

Admission nametag and course notes will be provided at the start of the course.

Time Table
The course starts at 9.00 am and ends at 5.00 pm daily. Lunch is at 12.30 pm to 1.30 pm. In between, there will be a morning tea & two tea breaks.

How to register
TEL: (03) 5621 3630 (Sheela)
FAX: (03) 5638 8248
E-MAIL: sheela.naidu@comfori.com

Mail:
Comfori Sdn. Bhd. (581115-T)
Unit E-02-3, 3rd Floor, Subang Square Business Centre, Jalan SS15/4G, 47500 Subang Jaya, Selangor.

For further enquiries:
Please call for more information
(03) 5621 3630 (Sheela)

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REGISTRATION FORM

**Electrical Engineering for the Non-Electrical Engineers**

Mr/Ms/Mrs: ____________________________________________________________
Position: _____________________________________________________________ HP: __________________________
Department: __________________________________________________________
Company: ______________________________________________________________
Address: ______________________________________________________________

Contact person: _________________________________________________________
Tel: __________________________ Fax: __________________________
Email: _________________________________________________________________
Type of Industry: _______________________________________________________

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