

**ELECTRICAL ENGINEERING**  
**(Post Graduate Diploma / Diploma Professional Course)**

**IPEBS**

ISO 9001-2008 Certified

**Electrical Engineering for Building Services – BS & NEC**  
**(Design/Site Installation/Drafting/Estimation)**



Course Date & Venue: STARTS EVERY MONTH 15<sup>th</sup> - 2016 – IPEBS, Hyderabad, INDIA.

*Note: Download IPEBS Training Calendar for exact course start dates for the year 2016 from [www.ipebs.in](http://www.ipebs.in)*

"Gain complete understanding of Electrical Systems Components, related Standards, Design Calculations, Installation / Maintenance Procedures & Electrical Drawings"

"Attend this knowledge – packed professional training diploma course & become an Electrical Specialist"

Walk – in for a Training Demo – Orientation / Course Overview by Course Upcoming Start Date.

### **Training Features:**

- Faculty with over a decade of Gulf Experience.
- Individual Attention & Placement Guidance.
- Hundreds of Students working in India & Middle East.
- Excellent Training Material provided including ( Training Manual, Demo Software's, Design Data Charts, Drawings & Design of Sample Projects )

## **PROGRAM OVERVIEW**

### **Electrical Engineering for Building Services per BS & NEC**

This certificate program introduces the full range of Electrical Building Services topics from the fundamentals to Power System Design, Wiring Accessories, Cable Management system, Lighting Systems, Earthing & Lightning Protection, Fire Alarm Systems, CCTV Systems, and Access Control Systems etc. Each topic is presented so as to demonstrate the "real world" impact of design decisions on resulting system performance. Numerous examples of actual designs are presented. (See the "Course Outline" section for details of topics).

### **WHO SHOULD ATTEND**

Electrical Engineers / Designers / Draftsmen / Technicians responsible for design, drafting, installation, estimation and maintenance of electrical systems for Building & Facilities.

MEP Engineers/Managers including mechanical, electrical & instrumentation engineers who wish to understand/supervise Electro-Mechanical projects.

Electrical Engineers who are at the entry level or junior level or senior level, who wish to streamline or enhance their existing knowledge and people of other fields who aspire to make a career in Electrical Engineering for Building Services.

### **WHAT YOU WILL LEARN**

#### **Upon completion of this course the participant will be able to**

- The fundamentals of Electrical Power Systems
- Electrical Codes & Standards
- Power System components- Circuit Breakers/ Transformers/ Capacitor banks etc.
- Switchgears & Panel Boards
- Power Cables & Applications
- Cable Management System- Conduits/ Trunking/ Cable Trays/ Duct Banks/ Trenches etc.
- Lighting Systems & Applications
- Earthing & Lightning Protection Systems
- Low Currents- FAS, CCTV, Access Control, Telephone, TV etc.
- Design Calculations
- Prepare Design, Shop & As- built Drawings

### **MAJOR COURSE MODULES**

- **Introduction**
- **Wiring Accessories**
- **Circuits**
- **Wires & Cables**
- **Cable Management System**
- **Power System Design**
- **Lighting System**
- **Earthing & Lightning Protection System**
- **Electrical Design Calculation**
- **Low Current/ ELV systems (Concept Design)**
- **Electrical Drawings**
- **Project Management**
- **Electrical Software**

## **DETAILED COURSE DESCRIPTION**

### **Module -1) Introduction**

- ✓ Scope of Electrical Engineers in Modern Construction Industry
- ✓ Basic Electrical Terms- Definitions, Glossary, Units, Abbreviations
- ✓ Electrical Codes & Standards - BS, NEC, IEE, IEEE, NFPA, IEC etc
- ✓ Generation, Transmission & Distribution of Electricity
- ✓ Basic Electrical Formulae

### **Module -2) Wiring Accessories**

- ✓ Switches & Sockets ( Types and Applications )
- ✓ Spur, Fused Connection Units, Cooker Units etc.
- ✓ Mounting Boxes
- ✓ Isolators & Disconnect Switches
- ✓ Standard Mounting Heights of Accessories

### **Module -3) Circuits**

- ✓ One Way Switch, Two Way Switch, Intermediate Switch Wirings
- ✓ Final Circuits – Lighting & Power Wiring Diagrams
- ✓ Radial & Ring Circuits
- ✓ Distribution Boards (DB)

### **Module -4) Wires & Cables**

- ✓ Wires & Cables ( Types and Applications)
- ✓ Conductors
- ✓ Insulations
- ✓ Sheathing
- ✓ Armoured Cables
- ✓ Selection of Cables

### **Module -5) Cable Management System**

- ✓ Conduit System & Layout
- ✓ Cable Trunking System
- ✓ Cable Tray, Ladder Systems
- ✓ Underground Cables (Directly Buried)
- ✓ Duct Banks & Cable Trenches
- ✓ Bus Duct & Bus Bar Risers

### **Module -6) Power System Design**

- ✓ Fuses (Types & Selection)
- ✓ Circuit Breakers (Types & Selection)
- ✓ RCD/ ELCB
- ✓ Panel Boards – Final DB, SMDB, MDB
- ✓ Motor Control Center (MCC) - Electric Motors & Starters
- ✓ Coordination with HVAC, Plumbing, Fire Fighting, Lift Systems like Chillers, AHU,FCU, Water & Drainage Pumps, Fire Fighting Pumps etc
- ✓ Capacitor Banks - Power Factor Improvement
- ✓ Switchgear- Forms of Panels
- ✓ Transformers
- ✓ UPS/ Inverter
- ✓ Standby Diesel Generators ( ATS & Changeover Switch )
- ✓ IP Protection

## **DETAILED COURSE DESCRIPTION (contd.)**

### **Module -7) Lighting System**

- ✓ Lighting Fixtures ( Types & Applications )
- ✓ Lighting Design- Illumination Lux Levels
- ✓ Emergency & Exit Lighting System

### **Module -8) Earthing& Lightning Protection System**

- ✓ Earthing Systems ( Types, Methods & Installation )
- ✓ Lightning Protection Systems

### **Module -9) Electrical Design Calculation**

- ✓ Circuit Breaker Sizing, Selection & Calculation
- ✓ RCD/ ELCB Sizing & Selection
- ✓ Branch & Main Feeder Cable Sizing, Selection & Calculation
- ✓ Earthing Cable Sizing & Selection
- ✓ Total Connected Load (TCL) & Max. or Peak Demand Calculation based on
- ✓ Diversity Factors
- ✓ Load Distribution Schedules & Load Balancing- Final DB, SMDB, MCC, MDB
- ✓ Cable Tray Sizing
- ✓ Transformer Sizing Calculations
- ✓ Standby Generator Sizing Calculations
- ✓ Capacitor Bank Calculations
- ✓ Lighting Illumination Calculations
- ✓ UPS sizing Calculations
- ✓ Voltage Drop Calculations
- ✓ Short Circuit Calculations

### **Module -10) Low Current/ ELV systems (Concept Design)**

- ✓ Fire Alarm & Detection System
- ✓ Closed Circuit Television System (CCTV)
- ✓ Access Control System
- ✓ Public Address (PA), Back Ground Music (BGM) System
- ✓ Satellite and Master Antenna Television System (SMATV)
- ✓ Communication Systems- Telephone, Data, Structured Cabling System

### **Module -11) Electrical Drawings**

- ✓ Preparation of Lighting Layouts ( Design, Shop Drawings & As Build Drawings)
- ✓ Preparation of Power Layouts ( Design, Shop Drawings & As Build Drawings)
- ✓ Preparation of Single Line Diagrams (SLD) or Power Riser Diagrams & Schematic Diagrams
- ✓ Preparation of Cable Tray/ Cable Routing Layouts
- ✓ Preparation of Electrical General Installation Details & Sections

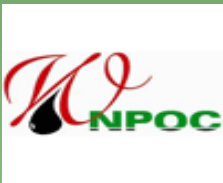
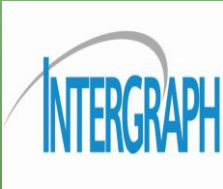
### **Module -12) Project Management**

- ✓ Project Estimation, Testing & Commissioning, Planning, Procurement Process, Tendering, BOQ etc

### **Module -13) Electrical Software**

- ✓ Dialux – Lighting Calculation.

## SELECTED CLIENTS



## GENERAL INFORMATION:

- Participants are expected to be present each day and during all training periods. Participants who do not fulfill the attendance requirement will not be certified. Please remember this when making your travel arrangements.
- Course fee includes Printed Training Materials (Manual, Hand outs etc.), & Participants will be awarded with Diploma / Post Graduate Diploma Certificate (\*QMS Accredited to \*AIAO – BAR).
- Venue for the Diploma Courses will be IPEBS facility, Hyderabad.
- The course is restricted to registered participants only. Visitors are not permitted.
- Use of mobile phones, Personal Data Assistants (PDA, Blackberry) and pagers is not permitted during training periods. Same applies for use of laptop, tablet, and computer for any purpose (E-mail, games etc.) other than course training.
- Participants are expected to maintain a professional standard of appearance and behavior. Any participant wearing inappropriate attire or behaving in an unprofessional manner will be given a verbal warning. Further incidents may result in the participant being asked to leave the class without refunding their fee.
- Failure to meet or comply with these requirements will result in non-certification.
- Accommodation can be arranged on request for the participants near to the training facility. (Accommodation is not included in the course fee).
- **International participants registering for the diploma courses, please contact IPEBS by email to [info@ipebs.in](mailto:info@ipebs.in) for further course details & visa assistance.**

**NOTE: 1) QMS – Quality Management System (ISO 9001 -2008).**

**2) AIAO – BAR – American International Accreditation Organization, California, USA.**

## WHY TRAIN WITH IPEBS

IPEBS team develops the training programs based on the practical consulting and site construction expertise that has been built up over the years in various specialist areas.

We set out to teach top-quality engineering skills training courses and we have achieved this-we constantly strive to make them as good as it's possible to – but over the years we have also refined our methods, adding several enhancements to the construction stages of course description, design of the courses and assessment.

We believe that these are important to our training participants; it's easy to see what the courses consist of, what value they will gain from attending them and how they can apply their new knowledge and skills in their workplace in a structured, evidence-rich way.



## INSTRUCTOR PROFILE

- ❖ Electrical Engineering Graduate from JNTU, Hyderabad.
- ❖ Certified Electrical Engineer – UAE.
- ❖ FEWA (Federal Electricity & Water Authority) Licensed Electrical Engineer – UAE.
- ❖ ADDC (Abudhabi Distribution Company) Licensed Engineer Ref No. 1173494.
- ❖ Over 12 years of Gulf experience in Electrical & MEP Services including Design, Installation & Maintenance.
- ❖ Worked in Gulf Countries including Kingdom of Saudi Arabia, Qatar, and UAE & India as Senior Electrical Engineer & MEP Projects Manager.
- ❖ Worked on different projects including Industrial Plants, 5 Star Hotels, Residential & Commercial Buildings, and School & Telecom Projects.
- ❖ Expertise includes Electrical Design for Building Services as per IS, BS & NEC Codes, Low Current Systems and Coordination MEP Services.
- ❖ Practicing Electrical & MEP Consultant for Gulf & Indian Building Services Projects.
- ❖ Successfully trained more than One Thousand Electrical & Electronic Engineers.
- ❖ International Course Speaker

DIPLOMA COURSE	DURATION	TIMING
<b>Electrical Engineering for Building Services (Design/Site Installation/Drafting/Estimation)</b>  <i>*For course fee details please contact , E-mail: <a href="mailto:info@ipebs.in">info@ipebs.in</a> Phone: +91-40-30623249, Mobile: +91-9885946711</i>	<b>30 Days ( Inclusive of Public Holidays)</b>	<b>05:00pm to 08:00pm</b>
<p><b>Can't take 4-6 Weeks for training?</b>  <b>Attend the Accelerated Training Workshop - A 5-Day Version of our Highly Acclaimed Diploma Courses.</b>  <b>For Further details about Workshops, please visit our website <a href="http://www.ipebs.in">www.ipebs.in</a></b></p>		
<p><b>Interested In Onsite training , For further Information on Onsite Trainings please contact , E-mail: <a href="mailto:corptrain@ipebs.in">corptrain@ipebs.in</a> Phone: +91-40-30623249, Mobile: +91-9885946711</b></p>		

### **Terms & conditions:**

**CANCELLATIONS:** IPEBS does not provide refunds for Cancellations done after registration & fee payment. However, credit maybe granted to a later program. This credit will be available for up to one year from the date of issuance.

**COURSE MATERIAL AGREEMENT:** It is the intention of IPEBS that the course text and materials supplied to participants at IPEBS courses are prepared and issued for the participants' sole use. Codes and standards constantly change and interpretations are issued by the publishing societies. Information contained in IPEBS course materials is based on the best available data obtained by IPEBS at the time of publication. IPEBS is in no way responsible for subsequent use regardless of intention.

**PROGRAM CHANGE POLICY:** Please note that instructors and topics were confirmed at the time of publishing this document; however, circumstances beyond the control of the training organizers may necessitate substitutions, alterations or cancellations of the instructors and/or topics. As such, IPEBS reserves the right to alter or modify the instructors and/or topics if necessary. Any substitutions or alterations will be updated on our web site.

**COURSE CANCELLATION BY IPEBS:** IPEBS reserves the right to cancel any course due to circumstances beyond our control. All tuition fees will be refunded in the event of cancellation. IPEBS liability is limited to only those tuition fees paid in advance.

**FORCE MAJEURE:** Except for the obligations to make money payments as outlined hereunder, neither party shall be responsible to the other for delay or failure to perform any of the terms and conditions, or other activities, of this agreement if such delay or failure is caused by strike, war, act of God, or force majeure.

## REGISTRATION FORM

Please visit [www.ipebs.in](http://www.ipebs.in) for details on courses we offer and more updated information.

You can register online.

Or

For applications by E-mail, please fill the form below and send to [info@ipebs.in](mailto:info@ipebs.in)

**COURSE TITLE: Electrical Engineering for Building Services  
(Design/Site Installation/Drafting/Estimation)**

COURSE DATE: \_\_\_\_\_ COURSE LOCATION: \_\_\_\_\_

NAME: \_\_\_\_\_ NATIONALITY: \_\_\_\_\_

QUALIFICATION: \_\_\_\_\_ WORK EXPERIENCE (if any): \_\_\_\_\_

JOB TITLE: \_\_\_\_\_ COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ POSTAL CODE: \_\_\_\_\_ COUNTRY: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

**In case of Emergency, contact**

NAME: \_\_\_\_\_ PHONE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

EMAIL: \_\_\_\_\_

**NOTE: Training Fee can be paid at the time of Joining the Course.**

I, acknowledge to the terms & conditions of the organizer.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

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