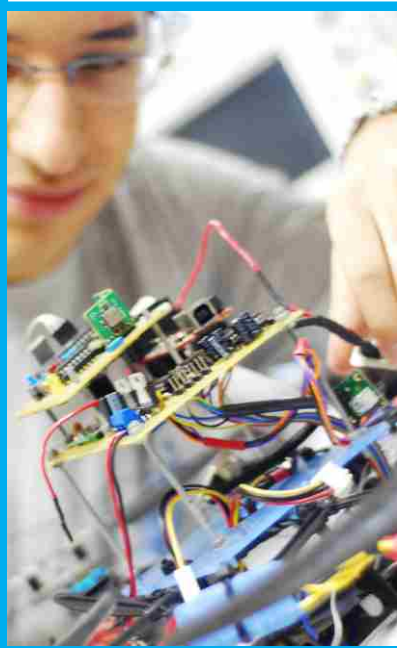


FUNDAMENTALS OF **POWER DISTRIBUTION** for Engineers & Technicians



What You

Will Learn...

- Correctly implement the right type of switchgear for the appropriate application
- Economically select and install the best-suited power cable for a specific application
- Evaluate the need for power factor correction, and successfully implement correction strategies
- Implement successful maintenance strategies and procedures
- Effectively use software techniques to solve problem areas in your power network

Course

STRUCTURE



“I would like to thank T&P Team of Smartbrains who helped me to get skill set on Electrical System Design. The learning experience was good and placement is excellent”

Zeeshan Ahmad

Ankit Electrotech Engineers Pvt Ltd, Noida

DAY ONE

INTRODUCTION

- Definition of power distribution
- Elements of a power distribution network
- Focus of workshop

FUNDAMENTALS OF POWER DISTRIBUTION

- Overview of basic electrical theory
- Basic design considerations
- Voltage considerations and improvement of voltage conditions
- Equipment generally used in power networks today

SHORT-CIRCUIT CURRENT CALCULATIONS

- Sources of fault current
- Fundamentals of short-circuit current calculations
- Assumptions and simplified calculations
- Restraints of simplified calculations
- Worked examples

MEDIUM VOLTAGE SWITCHGEAR

- Load currents and fault currents
- Switchgear capabilities and ratings
- Types of switchgear manufactured today and their applications
- Comparison of different types of insulation methods (air, oil, vacuum, SF₆)
- Advantages and disadvantages of different types of medium voltage switchgear
- Internal arc proofing
- Modern protection relays used with switchgear
- Preventative maintenance
- Future trends

POWER CABLES

- Insulation types and their applications
- Cable losses and voltage drop
- Cable ratings and short-circuits
- Single core vs three core cables
- Cable installation
- Cable splicing and termination techniques

DAY TWO

TRANSFORMERS

- Classifications
- Specifications
- Power transformers
- Connections and voltage taps
- Transformer impedance
- Insulation methods
- Cooling techniques
- Star-point earthing
- Accessories and protection

COMPENSATION AND POWER FACTOR CORRECTION

- Various capacitive and reactive compensation methods
- Overview of power factor theory
- Causes and effects of low power factor
- Methods to improve power factor and benefits
- Caution: capacitors with induction motors
- Transients and capacitor switching
- Resonance and harmonics
- Protection of capacitor banks
- Economic justification for power factor correction

GROUNDING

- System grounding
- Equipment grounding and earthing of structures
- Electrical safety earthing
- Static grounding
- Lightning protection
- Ground resistance measurement
- Factors influencing ground resistance

OVERVIEW OF COMPUTER SIMULATION SOFTWARE

- Load flow studies
- Fault level studies
- Equipment sizing
- Motor starting studies

LATEST DEVELOPMENTS IN TECHNOLOGY

- Automation of power distribution networks

SmartBrains Oil and Energy Institute provides premium training courses for energy industry executives and fresh engineering graduates. Our success and distinguished reputation is thanks to our commitment to provide first-class programmes to our clients. Combining leading professionals from across the industry as lecturers and an interactive, practical format, the lessons learnt in a SmartBrains for Energy course are directly transferable back to the work place.

Our Strategic Objectives

To be recognized by industry and employers as a highly reputable training organization. Provide dynamic leadership, sound management and excellence in training. Continue to improve our services through quality management processes. Invest in and value our people through professional development activities. Grow our business through innovation and to continue to be financially secure. Be influential in the economic development of the industries we serve nation wise

Admission

Requirements

- ▶ Duly Filled Application Form
- ▶ 2 Photographs
- ▶ Photo State of Qualifying Examination
- ▶ Address Proof
- ▶ I.D. Proof
- ▶ Latest Resume



Our Mission

“To provide quality training and assessment services and to prepare our students for a fulfilling professional career in their chosen industry. We are committed to upholding our values of providing excellence in training”

Declaration

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- ▶ SmartBrains has right to expel any student at any time for misbehavior, poor attendance without refunding the fees.
- ▶ Certification will be issued only after completion of course, submission of all assignments and passing all the examinations.
- ▶ SmartBrains has its own rules and regulations about conducting examinations and assessment of examinations

Noida Office:

H-86, Sector-63, Noida-201301
Land Mark: Behind Haldiram
Email : info@smartbrains.in
Phone: +91-120-4104991-94
+91-989 110 8700
Website: www.smartbrains.in

Hyderabad Office:

6-3- 680/403, 4 floor,
Regency House, Somajiguda,
Hyderabad - 500 082
Email : info@smartbrains.in
Phone : +91-9703751174
+91-9703132211

Vadodara Office:

9, Helix,Complex, Opp. Hotel Surya,
Sayajigunj, Vadodara - 390020
Email : info@smartbrains.in
Phone : +91-265-6595620/21
+91-9033033791/92

Pune Office:

30(1),(3), 2nd Floor, Premanjali
Complex, Opp. Ellora Palace,
Dhankawadi, Pune-411043
Email: info@smartbrains.in
Phone: +91-9860626494,
+91-9650276387