PRACTICAL HV AND LV SWITCHING OPERATIONS AND SAFETY RULES
for ENGINEERS and TECHNICIANS

OBJECTIVES:
At the end of this workshop, participants will be able to:

- Appreciate the basic theoretical aspects involved in electrical safety
- Understand the importance of proper isolation procedures for HV & LV equipment
- Understand the Coordinating permit access authority procedures
- Gain a clear understanding of the procedures/practices adopted for safe working
- Identify the various statutory and legal regulations/acts dealing with electrical safety at work
- Gain an insight into the organisational aspects of safety
- Become familiar with the organisation’s electrical safety rules (applicable to on-site training)

THE WORKSHOP:
In this course, we will take a look at the theoretical aspects of safety as well as the practical and statutory issues. One of the main causes of electrical accidents is said to be incorrect isolation of the circuits where work is to be done. To ensure safety of operators and maintenance personnel, proper switching procedures are necessary and more so when the circuits have multiple feeds and are complex. The possibility of voltage being fed back from secondary circuits needs to be considered as well. This course emphasises on the isolation procedures to ensure proper and safe isolation of HV, LV and secondary circuits.

Electrical safety is not just a technical issue. Accidents can only be prevented if appropriate safety procedures are evolved and enforced. This includes appropriate knowledge of equipment and systems imparted through systematic training to each and every person who operates or maintains the equipment. We will cover all these aspects in detail.

E-mail: training@idc-online.com Web Site: www.idc-online.com
PRE-REQUISITES:
Some working knowledge of basic electrical equipment is required, although this will be covered at the beginning of the course. Real-life experience with such equipment and hands-on testing will enable the workshop to be placed in context.

WHO SHOULD ATTEND?
◆ Instrumentation and Control Engineers
◆ Consulting Engineers
◆ Electrical Engineers
◆ Project Engineers
◆ Maintenance Engineers
◆ Power System Protection and Control Engineers
◆ Building Service Designers
◆ Data Systems Planners and Managers
◆ Electrical and Instrumentation Technicians

INTRODUCTION

Day One

BASIC THEORY OF ELECTRICAL SAFETY
◆ Electrical shock-Why does it happen?
◆ Touch and step potential (voltage)
◆ Direct and Indirect contact
◆ Role of electrical insulation in safety
◆ Avoiding electric shock-different approaches
◆ Earthing of power supply systems and its safety implications
◆ Role of earthing of equipment enclosures (protective earthing) in human safety
◆ Earthing in outdoor installations

SAFE OPERATION AND MAINTENANCE OF ELECTRICAL EQUIPMENT
◆ Key safety issues in O&M of electrical installations
◆ Isolation and earthing of equipment
◆ Use of warning signs for operation and maintenance
◆ Safety while working in outdoor switchyards and overhead lines
◆ Work on underground cable systems
◆ Use and upkeep of safety appliances in substations and other electrical premises
◆ First-aid for burns and electric shock

COORDINATING PERMIT ACCESS AUTHORITY PROCEDURES
◆ Requirements for access to electrical equipment
◆ Planning for switching and isolation
◆ Document management
◆ Communication in switching and isolation
◆ Auditing of switching and isolation procedures
OVERVIEW OF HV SWITCHING OPERATIONS

♦ HV equipments - Components & Apparatus
♦ Fundamentals of HV switching operations
♦ HV switching operations safety
♦ Restriction pertaining to HV Switching equipment
♦ Isolation of HV transmission and distribution systems
♦ Commissioning & Maintenance of HV equipments
OVERVIEW OF LV SWITCHING OPERATIONS
♦ LV equipments - Components & Apparatus
♦ Fundamentals of LV switching operations
♦ LV switching operations safety
♦ Commissioning & Maintenance of LV equipment

Day Two

SECONDARY ISOLATION PROCEDURES
♦ Fundamentals of secondary isolations
♦ Communications for secondary isolations
♦ Procedural & Technical aspects

APPLICABLE REGULATIONS AND STANDARDS ON SAFETY
♦ Necessity of safety rules & standards on safety
♦ Acts and Regulations dealing with safety at the work place
♦ Regulations related to usage of Electricity
♦ Regulations related to supply of Electricity
♦ Standards for Wiring, design and selection of LV installations

ORGANISATIONAL ASPECTS OF SAFETY
♦ Environment, Health & safety policy of the Organisation
♦ Mandatory Compliance to statutory requirements
♦ Monitoring safety compliances
♦ Safety training
♦ Role of an organization in ensuring/improving work safety

DISCUSSION ON HV & LV SWITCHING OPERATIONS, SPECIFIC HAZARDS AND SAFETY RULES APPLICABLE - (THESE CAN BE ORGANISATION-SPECIFIC FOR ON-SITE COURSES)

PRACTICAL EXERCISES

SUMMARY & OPEN FORUM

COMPLETE FEEDBACK SHEETS

CLOSING