EE094:
Electrical Awareness for Electricians and Non-Electricians
Training Description:

This course has been specifically developed for non-electrical maintenance and service personnel and will give them the knowledge and skills required to enable them to work safely alongside qualified electricians. Many modern industrial components are discussed along with the principle operation and how to check for fault status. Safe working practices are covered along with an introduction to fault finding including practical exercises.

Training Objectives:

By the end of the training, participants will be able to:
- ✓ Recognize the basic concepts of electricity
- ✓ Identify types of electrical hazards such as electrical shocks and etc.
- ✓ Identify the characteristics of arc flash and arc blast
- ✓ Use proper equipment at work during electrical inspection and operation
- ✓ Apply proper procedure of electrical emergencies and first aid
- ✓ Identify the requirements of electrical lockout and tag-out and its application
- ✓ Determine risks, precautions and implement safety rules as well as proper procedures in an electrical working area

Training Designed for:

This course is for non-electrical personnel who work with and around systems and machinery powered by electricity and to anyone in the workplace who wishes to learn more about electricity to help them stay safe.

Training Program:

**DAY ONE:**

- ❖ PRE-TEST
- ❖ BASIC ELECTRICAL TERMINOLOGY
  - Current
  - Resistance
  - Voltage
  - Conductors
  - Insulators
  - Grounding
- ❖ HAZARDS OF ELECTRICITY
  - Electrical shock
  - Arc flash
  - Arc blast
- ❖ STEP AND TOUCH POTENTIAL
  - Step potential
  - Touch potential
- ❖ ELECTRICAL SHOCK
  - Dangers of electrical shock
  - Effects of electricity on the body
How is an electrical shock received?
Low voltage does not mean low hazard
Examples of electrical burns and injuries
Examples of electrical accidents involving non-electrical personnel

**DAY TWO:**

- **ARC FLASH**
  - Characteristics of an arc flash
- **ARC BLAST**
  - Characteristics of an arc blast
- **RECOGNIZING ELECTRICAL HAZARDS**
  - Exposed wiring
  - Tripping and abrasion hazards
  - Cabinets, boxes, and fittings
  - Daisy chain multi-outlet strips
  - Electrical boxes
  - Damaged grounding plugs
  - Broken conduit and damaged equipment
  - Overhead lines
  - Underground cable
- **SAFE WORK PRACTICES**
  - Portable electric equipment and flexible cord set requirements
  - Electrical power tool safety
  - Cord control
  - Extension cords - items to consider before use
  - Resetting breakers
  - Conductive apparel
  - Wall penetrations
  - Equipment applications and standards labeling
  - Using ground fault circuit interrupter to protect workers
  - Circuit breaker tripping and molded case circuit breakers
  - Downed power lines
  - Ladders used around electrical hazards
  - Approach distances to overhead lines.
  - Specific clearance requirements around electrical equipment
  - Emergency generators
  - Battery banks
  - Battery chargers

**DAY THREE:**

- **ELECTRICAL SYSTEM INTRUSIONS**
  - Excavating, cutting or drilling into electrical systems
- **OBEYING ALL SIGNS AND BARRIERS**
  - Signs, symbols, tags, and barricades are used to warn personnel of potential electrical hazards - know how to read and obey them
❖ ELECTRICAL HAZARDS ENCOUNTERED BY SPECIFIC WORK GROUPS
  - Welders
  - Heavy equipment operators
  - Excavators
  - Warehouse workers
  - Painters

❖ ELECTRICAL EMERGENCIES
  - Electrical accidents
  - Electrical rescue techniques
  - Role of CPR

DAY FOUR:
❖ ELECTRICAL SAFETY FOR BUILDING OWNERS, MANAGERS AND SUPERVISORS
  - Overview of NFPA 70e/CSA Z462 Electrical Safety in the Workplace (simplified)
  - Who is a qualified electrical person?
  - Who is an unqualified electrical person?
  - Safe work vs unsafe work

❖ HIRING OUTSIDE CONTRACTORS WHO ARE NFPA 70E/CSA Z462 COMPLIANT (checklist)
  - Provide hazard assessment of work location(s) to contractors
  - Have contractors provide their procedures when working with electricity
  - Contractor qualifications and who from contractor to take out electrical permit as per local regulation

❖ ELECTRICAL SAFETY TRAINING PROGRAMS
  - Adopting electrical standards such as NFPA 70e/CSA Z462
  - Establishing and identifying who within the facility is qualified to work on electrical equipment

❖ ELECTRICAL ENERGIZED WORK PERMITS
  - Where energized work permit needed
  - Exemptions
  - Sample of energized work permit

DAY FIVE:
❖ LOCKOUT RULES
  - Individual lockout requirements
  - Group lockout requirements
  - Locks, tags and hardware to be used

❖ ROLE OF "THE SAFETY WATCHER"
  - Qualifications of safety watcher
  - Where safety watcher used
  - Authority of safety watcher

❖ RULES GOVERNING ELECTRICAL EQUIPMENT LABELING
  - Labelling to address electrical code requirements
  - Labelling needed to meet NFPA 70e/CSA Z462 standard
  - Who applies labelling

❖ ELECTRICAL SAFETY CLOTHING AND PPE FOR ELECTRICAL PERSONNEL
  - Description of all PPE as related to electrical shock and arc flash
• Training on use of PPE
• Procedures where PPE is required
❖ Course Conclusion
❖ POST-TEST and EVALUATION

Training Requirements:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request”.

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

• 30% Lectures, Concepts, Role Play
• 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
• Pre and Post Test

Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

As per the course location - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:
07:45 - 08:00  Morning Coffee / Tea
08:00 - 10:00  First Session
10:00 - 10:20  Recess (Coffee/Tea/Snacks)
10:20 - 12:20  Second Session
12:20 - 13:30  Recess (Prayer Break & Lunch)
13:30 - 15:00  Last Session

For training registrations or in-house enquiries, please contact:
Aisha Relativo: aisha@cmc-me.com
Tel.: +971 2 665 3945 or +971 2 643 6653 | Mob.: +971 52 2954615
Training & Career Development Department