

EMT015—Electrical Inspection Fundamentals course



The Electrical Inspection Fundamentals course introduces the student to techniques used in the inspection of electrical equipment installations. The student will be given a familiarization of general inspection concepts and processes necessary to interpret common electrical and classified area drawings. The course includes a practical overview of principles and techniques used in the identification of hazardous areas, appropriate equipment installation and visual inspection methods.

Course objective

Upon completion of the Electrical Inspection Fundamentals course, the student will be able to demonstrate the basic skills and processes required to complete an electrical inspection using appropriate documentation and checklists.

Learning techniques

In order to provide the highest quality training experience, this course will consist of the following instructional elements:

- **Instructor-led presentation**
The core elements of skill will be presented and demonstrated in a classroom environment.
- **Practical demonstrations and lab exercises**
The student will be immersed in the subject material through hands-on tasks to build and retain acquired skills.
- **Final exam**
A written examination will be administered at the end of the course. The student will be required to successfully complete the examination to receive credit for the course.

Course details

Course code

EMT015

Target audience

Electrical installation and maintenance personnel

Duration

5 days

Prerequisites

Electrical installation experience

Accreditation and continuing education credit

This course is accredited by International Association of Drilling Contractors (IADC). Successful completion of this course will result in the award of Continuing Education Units (CEUs) or Professional Development Hours (PDHs).

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Course outline

- **General inspection techniques**
Introduction to the processes and sequential methodology of electrical inspections.
- **Industrial electrical safety**
Introduction to industrial electrical safety. Discuss procedures for obtaining permits to do inspection work, hot work permits; lock-out/tag out-procedure, etc.
- **Ex protection concepts**
Overview of specific installation requirements for various explosion protection techniques.
- **Hazardous area classification**
Review of Hazardous Area Classifications and the environment the electrical equipment is being installed. Discuss hazardous area classification, gas group, temperature class and ambient temperature range in order to verify installed electrical equipment is suitable for the hazardous area.
- **Documentation requirements**
Introduce the steps necessary to obtain all relevant documentation for electrical installations in accordance with manufacturer publications, certificates of conformity and associated project electrical installation specifications.
- **Installation drawings**
Demonstrate the steps required to interpret relevant drawings prior to commencing inspections such as hazardous area classification drawings, P&IDs, interconnection drawings, loop/schematic drawings and general arrangement (GA) drawings.
- **General installation techniques**
A practical demonstration of electrical installations in hazardous areas. Student will perform general installation of cables, glands and terminations using appropriate tooling and processes.
- **Codes and standards**
Student will be introduced to the codes and standards of electrical installations. Student will assess and verify relevance of codes and standards as to how they apply to electrical installations in associated hazardous areas.
- **Hazardous area equipment registries**
Discussions of the importance of verifying the project hazardous area equipment register. Validate that electrical equipment that has been installed in the hazardous area has been verified and listed on the register. Data entered into the register will have to be verified on actual data plate located on electrical equipment.
- **Inspection check sheets**
Student will complete inspection check sheets for electrical equipment being installed in hazardous area. Must be able to understand all involved line items to fill out check sheets correctly and properly. Installations must be completed to satisfaction prior to signing off check sheet showing installation is ready to be put into service.



- **Punch list/remedial work**
Student will identify electrical equipment installation faults and document on the punch list. Provide a corrective course of action for remedial work to be completed.
- **Cabling testing**
Perform/verify testing of electrical cabling installed. Use of a multi-meter for point to point (ohms) testing proving cables are installed to and from the correct locations per drawings and have been identified and tagged correctly. Perform insulation resistance testing with Megger (M Ω) for electrical cabling proving cabling insulation has not damaged and is ready to be put into service. All test result values must be documented on data sheet.
- **Grounding and bonding of electrical equipment**
Understand grounding and bonding of electrical equipment. Ability to size grounding and bonding conductors correctly for motors, instruments, enclosures/junction boxes, cable trays/ladder trays and conduit raceways. Demonstration of proper crimping practices with proper crimping tools associated with lugs, ferrules, etc.
- **Startup and commissioning**
Demonstration of final verification, calibration and testing of electrical equipment and cabling terminations prior to startup.

To register, visit
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