

CompEx Endorsed Ex Fundamentals for Electrical Personnel

Learn how to work safely in hazardous areas. Courses for electrical professionals who perform work in onshore facilities, vessels and offshore.

Objectives of Ex Fundamentals for Electrical Personnel

After completing the training, the participants shall have acquired the necessary knowledge about electrical installations in hazardous areas, so that they can carry out installations and perform inspection and maintenance in a safe manner.













Who needs Ex Fundamentals for Electrical Personnel?

Electrical, automation and other personnel working in or designing electrical installations in hazardous areas. The course applies to personnel working in onshore facilities, offshore and vessels.

Subjects covered in Ex Fundamentals for Electrical Personnel

- Basic Ex philosophy
- The fire triangle
- Ignition sources, the 5 most common
- Area classification
- What do you need to know before entering a hazardous area?
- Marking on Ex-equipment how to read it?
- Types of protection how is equipment made safe to use?
- Work permits
- Choice of cables and glands
- Earth systems in hazardous areas
- Selection of motors for hazardous areas
- Inspection and maintenance, introduction
- Final Fxam

Technical information

System requirements: Recommended minimum connection speed is 1.5 Mbps. If you experience problems while running the course, we recommend using the Google Chrome browser.

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CompEx Endorsed Ex Fundamentals for Mechanical Personnel

Learn how to work safely in hazardous areas. Courses for mechanical personnel who perform work in onshore facilities, vessels and offshore.

Objectives of Ex Fundamentals for Mechanical Personnel

After completing the course, the participants will have acquired safety-related knowledge of potentially explosive areas, so that they can carry out their work in a responsible manner. They will have been familiar with methods for inspection and maintenance, as well as become familiar with the safety aspects to be able to choose and install equipment, so that explosion safety is safeguarded.













Who needs Ex Fundamentals for Mechanical Personnel?

Mechanical and other personnel working in hazardous areas. The course applies to personnel working in onshore facilities, offshore and vessels.

Subjects covered in Ex Fundamentals for Mechanical Personnel

- Basic Ex philosophy
- Fire triangle
- The most common ignition sources
- Area classification
- Safe behavior in hazardous areas
- Marking of mechanical Ex-equipment how do you read it?
- Marking on Ex equipment additional requirements for the EU
- Mechanical protection methods how to use equipment safely
- Work permits
- Earthing/bonding in hazardous areas
- Motors for hazardous areas
- A brief introduction to inspection and maintenance
- Final exam

Course is based on EN ISO 80079-36, EN ISO 80079-37, EN 1127-1, EN IEC 60079-14, EN IEC 60079-17

Technical information

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CompEx Endorsed Safe Behaviour in Hazardous Areas

Learn how to work safely in Ex areas. The authorities require documented training in explosion prevention for all who enter Ex areas.

Objectives of Safe Behaviour in Hazardous Areas

The course provides basic knowledge of hazardous areas and the risks associated with passing through or working in such areas.

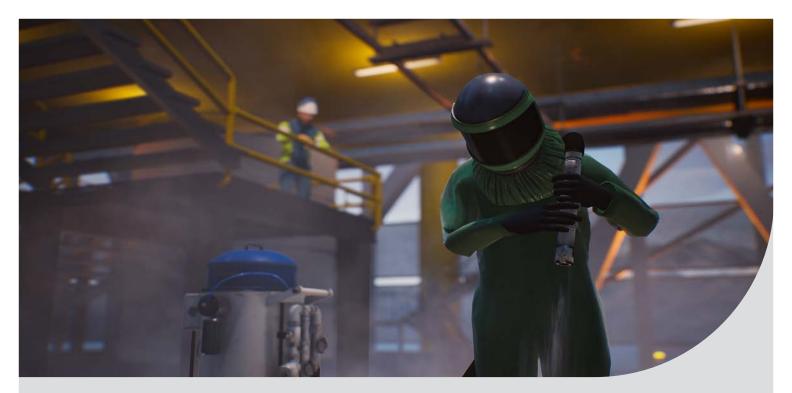












Who needs Safe Behaviours in Hazardous Areas?

Personnel who have access to areas where there is explosion hazard.

For example, an oil platform, processing plant, refinery, distillery, tanker, silo, petrol station or a place where an explosive atmosphere may occur due to gas, liquid vapor, liquid mist or dust mixed with air.

Subjects covered in Safe Behaviours in Hazardous Areas

- The risk of fire and explosion
- Risks associated with hazardous areas where there is gas or dust in suspension
- Sources of ignition
- Risks and consequences
- Preventing accidents and dangerous incidents
- Working methods
- Using the correct tools
- Safety measures
- Examples of accidents and incidents
- Portable electrical equipment (handheld, portable and transportable)
- Final exam

Course is based on the Directive 1999/92/EC (ATEX User directive), IEC 60079-0, IEC 60079-10, EN 1127-1.

Technical information

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Batteries and Battery Systems

Participants in this course will learn basic theory related to lead, nickel, and lithium batteries in various applications. This course enhances participants understanding of battery systems and their ability to maintain and handle them safely.

Objectives of Batteries and Battery Systems

To provide participants with a basic understanding of various types of battery systems, their characteristics, and safety procedures for proper handling and maintenance.













Who needs Batteries and Battery Systems?

Individuals who work with, or are responsible for the maintenance of battery systems, as well as those who wish to increase their knowledge of battery technology.

Subjects covered in Batteries and Battery Systems

- Basics of battery systems
- Lead batteries: History, construction, and types
- Nickel batteries: Origin, characteristics, and uses
- Lithium batteries: Introduction, construction, and future
- Safety mesure
- Risks and First Aid

Regulations

No regulations applicable for this course

Technical information

System requirements: Recommended minimum connection speed is 1.5 Mbps. If you experience problems while running the course, we recommend using the Google Chrome browser.

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Cable Entries in Hazardous Areas

Do you know the requirements that apply to cables and glands in Ex areas? Learn about cable entry techniques and correct methods for execution in potentially explosive areas.

Objectives of Cable entries in Hazardous areas

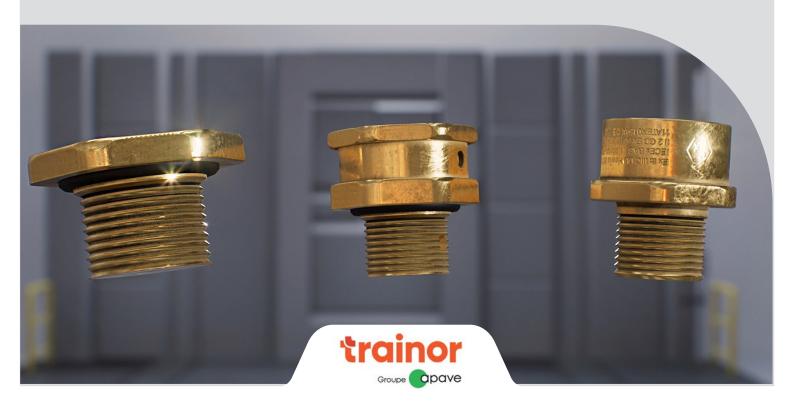
The course participant will get an introduction to different methods for cable entries, and cable transits, for Ex equipment in potentially explosive areas.













Who needs Cable Entries in Hazardous Areas?

Electrical professionals who work with or design electrical installations in potentially explosive areas.

Subjects covered in Cable Entries in Hazardous Areas

- Requirements for cables used in onshore facilities
- General requirements for cable gland selection
- Ex d General gland requirements
- Ex d Compound gland
- Ex d Double compression gland
- Ex d Through gland
- Ex e Types and requirements
- Ext Types and requirements
- Adapters, drain plugs, and blind bolts
- Multiple Cable Transit MCT
- Laying technique
- Ferrules and cable lugs

Technical information

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Challenges in Dusty Areas

Do you know the dangers of dust in production facilities? Learn about dust types, dust properties and measures you can do to prevent dust explosions from occurring.

Objectives of Challenges in Dusty Areas

The course participant will learn about hazards in areas containing dust, and how to prevent dust explosions occurring.













Who needs Challenges in Dusty Areas?

Anyone working in or with areas where there is a dust explosion hazard.

Subjects covered in Challenges in Dusty Areas

- The explosion pentagon
- Hazards related to dust
- Dust types
- Dust properties
- Measures to prevent accidents

Technical information

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Electrical

Arc Flash Hazards

The risk of electrical incidents is always present. An incident only occurs when there is an opportunity and often it is handling errors that cause the incident. This can lead to Arc Flash events.

Objectives of Electrical Arc Flash Hazards

This course teaches you how electrical arc flash hazards develop and behave. You will learn measures to help prevent the incident energy in an electric arc. The course cover risk prevention and reduction through factors such as establishing barriers, installing different types of protective devices, and disconnecting equipment that contributes to electrical short-circuit currents.













Who needs Electrical Arc Flash Hazards?

Personnel who may be exposed to the potential for electric arcs during their work tasks in addition to personnel who design and operate electrical installations

Subjects covered in Electrical Arc Flash Hazards

- Potential dangers from electric arcs
- Injuries resulting from electric arcs
- Incident energy and contributing factors
- Barriers such as switchboard panels and personal protective equipment (PPE)
- Short circuit currents in arc flashes
- Protective devices and arc flash detectors
- How to limit incident energy and arc flash duration

References

The following standards are recommended for further information related to Arc Flash - NFPA 70E, IEC TR 61641, IEC 62271-200, IEE 1584a, IEC 61892-2

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Electrical Safety for Instructed Personnel

Electrical Safety course for employees who may be assigned to perform basic operational tasks such as changing fuses and resetting protection devices in electrical installations.

Objectives of Electrical Safety for Instructed Personnel

The aim of the is to enable you to assess risks and avoid electrical hazards. This will contribute to increased safety for you and your colleagues, ensuring a safer workplace with reduced risk of personal injuries. This will help organisations prevent operational challenges in their facilities caused by minor electrical issues that can be easily mitigated by an employee assigned to the Instructed Personnel role.













Who needs Electrical Safety for Instructed Personnel?

All employees assigned to the Instructed Personnel role in various types of commercial buildings. This includes everything from gas stations and grocery stores to large food production facilities, office buildings and some heavier industries.

Subjects covered in Electrical Safety for Instructed Personnel

- What is Instructed Personnel?
- Introduction to electrical installations and associated hazards
- Access control and protective equipment
- Operation of switches, protection devices and fuses
- Challenges you may face as Instructed Personnel
- Final Exam

Additional guidelines for Instructed Personnel

Instructed Personnel should receive instruction and hands on practice with the installations and electrical equipment they will operate. It is also advised that employees should attend training in First Aid with focus on electrical injuries.

Technical information

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Ex for ISS Disciplines (Insulation, Scaffolding and

Surface Treatment)

Become aware of the dangers in potentially explosive areas, so that personnel within the ISS disciplines do not take measures that could affect safety and that you, as a contractor, do your work in potentially explosive areas in a safe manner.

Objectives of Ex for ISS Disciplines

After completing the course, participants must have knowledge of basic fire and explosion theory, potential sources of ignition, which standards apply, and how to understand labels on equipment.

















Who needs Ex for ISS Disciplines?

Personnel from within the ISS disciplines (insulation, scaffolding and surface treatment).

Subjects covered in Ex for ISS Disciplines

- Explosion theory and sources of ignition
- Safe Behaviour in Ex areas
- Standards
- Risk assessment and area classification
- Selection of equipment
- Portable electrical equipment (handheld, portable and transportable)
- Final exam

Technical information

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Ex for Mechanical Disciplines

Petroleum Industry

Learn to work safely in explosive areas. Course for mechanical personnel who carry out work in the petroleum industry.

Objectives of Ex for Mechnical Disciplines - Petroleum Industry

After completing the course, the participants must have acquired the necessary knowledge about safe behavior and work in potentially explosive areas, so that they are able to carry out their work (non-electrical) in a safe manner in potentially explosive areas.













Who needs Ex for Mechanical Disciplines - Petroleum Industry?

Non-electrical workers who will work with equipment and tools that can constitute an ignition source.

Subjects covered in Ex for Mechnical Disciplines - Petroleum Industry

- Explosion theory and sources of ignition
- Standards
- Risk assessment and area classification
- Choice of equipment
- Types of protection with installation requirements
- Planning and selection of equipment
- Inspection and maintenance
- Final exam

Technical information

System requirements: Recommended minimum connection speed is 1.5 Mbps. If you experience problems while running the course, we recommend using the Google Chrome browser.

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Ex Safety and Awareness Petroleum Industry

Become aware of the dangers in potentially explosive areas, so that you, as administrative personnel, do not take any measures that could affect safety and that you, as a contractor, do your work in potentally explosive areas in a safe manner.

Objectives of Ex Safety and Awareness - Petroleum Industry

After completing the course, participants must have knowledge of basic fire and explosion theory, potential sources of ignition, which standards apply, and how to understand labels on equipment.

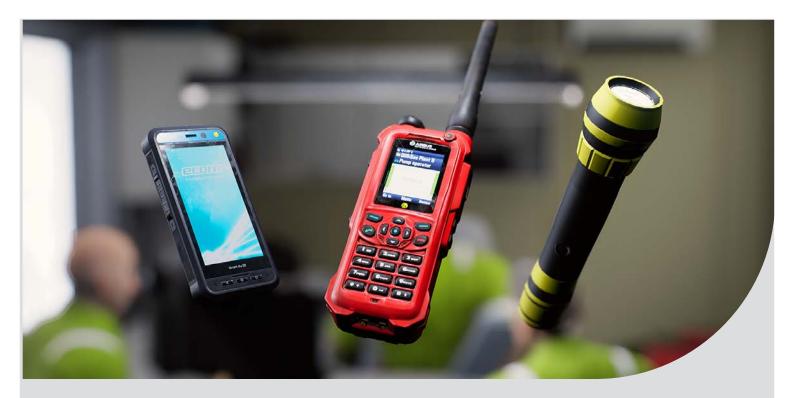












Who needs Ex Safety and Awareness - Petroleum Industry?

Personnel from support functions, both executive and non-executive, and from a non technical background, such as buyers and sellers.

Personnel in mechanical trades, process operators, operations personnel and any other personnel who carry out work that may affect the safety of electrical installations. The course is also for personnel who work with non-electrical equipment, but which contains possible sources of ignition.

Additionally managers and others with authority who can implement measures that may affect safety in Ex facilities.

Subjects covered in Ex Safety and Awareness - Petroleum Industry

- Explosion theory and sources of ignition
- Safe Behaviour in Ex areas
- Standards
- Risk assessment and area classification
- Selection of equipment
- Portable electrical equipment (handheld, portable and transportable)
- Final exam

Technical information

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Ignition Sources in Hazardous Areas

Do you have an overview of all sources of ignition in potentially explosive areas? Get an overview of the various ignition sources that exist, how they arise and develop.

Objectives of Ignition Sources in Hazardous Areas

The aim of this course is to give the course participant awareness toward possible ignition sources at their own place of work.

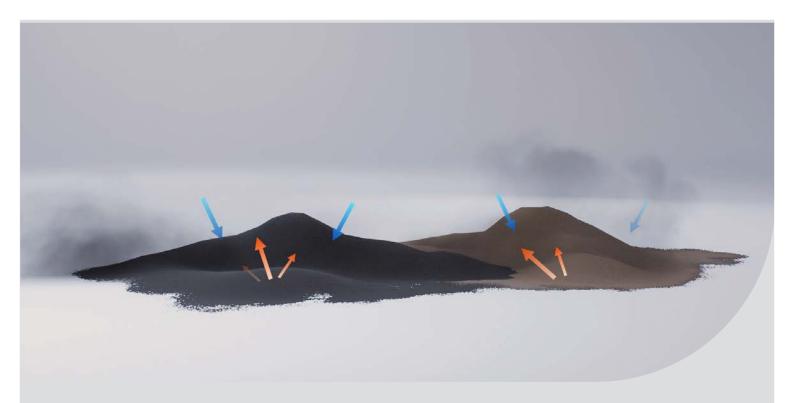












Who needs Ignition Sources in Hazardous Areas?

Anyone working in environments with increased risk of fire or explosion hazard.

Subjects covered in Ignition Sources in Hazardous Areas

- Hot surfaces
- Flames, hot gases, and hot particles
- Mechanically generated ignition sources
- Electrical equipment and components
- Stray electric currents
- Static electricity/buildup
- Lightning strikes
- Radio frequencies and electromagnetic waves
- lonizing radiation
- Ultrasonic waves
- Adiabatic compression
- Exothermic reactions

Technical information

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Maritime

Battery Systems

Learn basic theory about Lithium-Ion batteries and auxiliary and monitoring systems. This course will enhance emergency personnel's ability to respond effectively to potential risks and provides electrical personnel with the necessary theoretical competence on Lithium-Ion batteries onboard marine vessels.

Objectives of Maritime Battery Systems

To prepare maritime emergency personnel to deal with safety challenges and ensure effective handling of emergency situations involving battery systems in maritime environments.













Who needs Maritime Battery Systems?

Maritime and emergency personnel onboard marine vessels, including those working with risk assessment and crisis management related to battery systems.

Subjects covered in Maritime Battery Systems

- Basics of Lithium-Ion batteries
- Risks and First Aid
- Safety measures and procedures for emergency situations
- Emergency planning and crisis management
- Definitions and concepts
- Safety mechanisms
 - Internal
 - External
- Thermal runaway
- Auxiliary systems
 - BMS (Battery Management Systems)
 - EMS (Energy Management System)
- Handling, storage and transport
- Summary and final test

Technical information

System requirements: Recommended minimum connection speed is 1.5 Mbps. If you experience problems while running the course, we recommend using the Google Chrome browser.

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Marking of **Electrical Equipment**

Ex equipment carries a marking plate that includes details about what surroundings and external influences the equipment has been certified for. Can you interpret the codes?

Objectives of Marking of Electrical Equipment

Having completed this course, participants will have gained good insight into how electrical equipment is Ex-marked, and what the different markings mean. Participants will learn to distinguish between the different types of markings and make good decisions when selecting equipment to use in an installation in a potentially hazardous area.













Who needs Marking of Electrical Equipment?

Electrotechnical and automation personnel and other personnel planning or working on electrical installations in potentially hazardous areas. The course will also be useful for manufacturers and suppliers of Ex equipment.

Subjects covered in Marking of Electrical Equipment

- How to read a marking plate
- Protection types for electrical equipment
- Markings that follow the IEC standard
- Certification references
- A brief introduction to marking mechanical equipment
- Marking associated equipment and associated apparatus
- A short history of markings
- A summary of markings given by the ATEX directive
- Types of ATEX markings

Technical information

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Marking of **Mechanical Equipment**

Certified Ex equipment has a marking plate that includes details about the equipment's explosion protection and the area in which the equipment may be used. Can you interpret these codes?

Objectives of Marking of Mechanical Equipment

Having completed this course, participants will have learned how mechanical equipment is Ex-marked, and what the different markings mean. Participants will learn to distinguish between the different types of markings and make good decisions when selecting equipment for use in an installation in a potentially hazardous area.













Who needs Marking of Mechanical Equipment?

Personnel working with installing and maintenance of mechanical equipment and other personnel planning or working on installations in potentially hazardous areas. The course will also be useful for manufacturers and suppliers of Ex equipment.

Subjects covered in Marking of Mechanical Equipment

- How to read a marking plate
- Protection types for mechanical equipment
- Markings that follow the ISO standard
- Certificate number
- A brief introduction to marking electrical equipment
- Marking associated equipment and associated apparatus
- Assemblies
- Additional markings introduced by the ATEX directive
- Requirements for certified equipment

Technical information

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