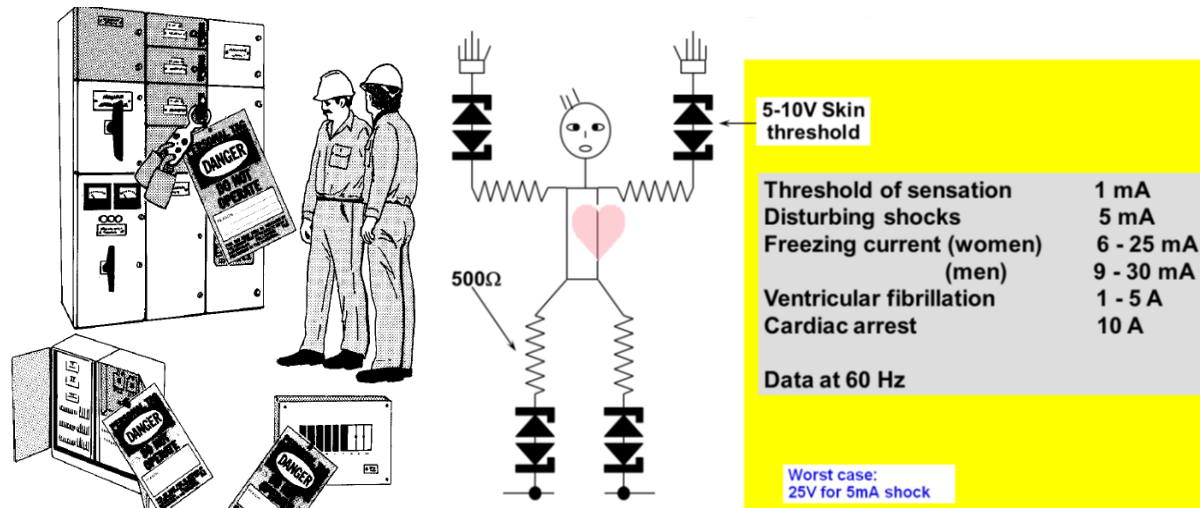




Technology Training that Works

# Practical Hazardous Areas for Engineers and Technicians



4 hour live, practical online course

## YOU WILL LEARN:

- Assist in hazardous area classification and design and install safe working systems in hazardous areas
- Detail the types of apparatus that can be used in a given hazardous area
- Understand system limitations in using hazardous areas protection
- Understand the basics of explosion protection to IEC standards

## WHAT'S INCLUDED?

- Four 50 minute live, practical sessions with your instructor and attendees
- The full technical eBook manual for “Practical Hazardous Areas for Engineers and Technicians” which includes course slides, cases studies, calculations and practical exercises
- Four hours of additional in-depth video sessions covering many additional areas – yours to keep and watch any time you want

## THE COURSE

This practical, live, online course provides you with an understanding of the hazards involved in using electrical equipment in potentially explosive atmospheres. It is based on the international IEC79 series of standards that are now replacing the older national standards. Installation utilising Explosion-Protected (Ex) equipment can be expensive to design, install and operate. The wider approaches described in these standards can significantly reduce costs whilst maintaining plant safety.

The associated terminology and its correct use are explained throughout the workshop. It covers area classification, selection of explosion protected electrical apparatus as well as describes how protection is achieved and maintained in line with these international requirements. Standards require that engineering staff and their management are trained effectively and safely in hazardous areas and this interactive course is designed to help fulfil that need.



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## ONLINE COURSE PRESENTER

### John Piperides BE Electrical

John is a professional electrical engineer with over 25 years experience in industrial maintenance, production, management, sales and improvement. He has held management positions in several manufacturing and sales companies. His diverse responsibilities have included contract negotiation, authoring and responsibility of departmental budgets, daily management of over 20 reports, practice of cGMP, auditing in a pharmaceutical plant, and system administration and programming of diverse IT and embedded systems. He has been directly involved with industries including building management, pest control, mining, power utilities, food, pharmaceutical, steel, building products, sugar, paper and pulp, rail and airports.



John has completed many years of further education including developing, writing and delivering many work based courses and seminars. He has spent 10 years as a part time teacher at TAFE in electrical engineering, and 15 years delivering structured courses in thermography, power quality, instrument safety, motor drive theory, PLC, SCADA, and pest inspection.

### WHO SHOULD ATTEND?

Anyone involved in design, specification, installation, commissioning, maintenance or documentation of industrial instrumentation, control and electrical systems, including:

- Control engineers
- Design engineers
- Electrical tradespersons
- Electrical engineers
- Instrumentation engineers
- Instrumentation technicians and tradespersons
- Tradespersons working in Potentially Explosive Atmospheres (PEAs)

### PRE-REQUISITES:

Not applicable.

### CONTENT SUMMARY

#### INTRODUCTION

*This is an intensive four (4) hour presentation; we will be emphasising sections marked in **BOLD** below. Full recordings will be provided for the lower intensity sessions (another four hours of video as detailed below) to review after the course.*

### LIVE SESSION

#### SESSION ONE & TWO

#### TYPES OF PROTECTION

- Definitions
- Principles
  - Application of:
  - Flameproof: Ex d
  - Increased safety: Ex e
  - Pressurisation: Ex p
  - Intrinsic safety: Ex i
  - Non-incendive: Ex n
  - Oil filling: Ex o
  - Powder filling: Ex q
  - Encapsulation: Ex m
  - Special: Ex s



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*Pre-recording 1:*

- BACKGROUND TO HAZARDOUS AREAS
  - Explosion consequences
  - Nature of hazards
  - Definition of hazardous area
  - Flammability concepts
  - Ignition sources
  - Properties of gases, vapours, mists and dusts
  - Introduction to types of protection

*Pre-recording 2:*

- CLASSIFICATION SYSTEMS
  - Source of release
  - Area classification into zones
  - Equipment (apparatus) grouping
  - Temperature classification and ambient rating
  - Summary of principles of Ex protection
  - Equipment protection levels

**SESSION THREE**

**CODE OF PRACTICE FOR SELECTION AND INSTALLATION OF Ex EQUIPMENT**

- Application of code of practice
- General requirements for all types of protection
- Documentation requirements and the verification dossier
- Cabling
- Overview of requirements for individual Ex protection types
- Dust installations overview

*Pre-recording 3:*

- EARTHING AND BONDING
  - Basic principles
  - Earthing requirements
  - Static protection
  - Lightning protection
  - Noise and interference control
  - Requirements for IS systems
  - System earthing approach

**SESSION FOUR**

**INSPECTION AND MAINTENANCE REQUIREMENTS**

- Inspection and maintenance definitions
- Types of inspection
- Initial detailed pre-commissioning
- Inspection regimes and documentation
- Record keeping



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*Pre-recording 4:*

- FAULT FINDING AND REPAIRS OF Ex EQUIPMENT
  - Planned maintenance
  - Use of tools
  - Procedures
  - Safe methods
  - Test equipment suitability
  
- STANDARDS, CERTIFICATION, CERTIFICATES, MARKING AND APPROVALS
  - Authorities
  - Marking and identification
  - Component certification
  - Equipment certification
  - Systems certification
  - Systems descriptive documentation (for Ex i)
  
- ATEX DIRECTIVES
  - Introduction and explanation (European requirements)
  - Non-electrical ignition-capable equipment protection
  - ATEX marking
  - DSEAR (UK) requirement summary

**SUMMARY, OPEN FORUM**

**CLOSING**