



## PROFESSIONAL CERTIFICATE OF COMPETENCY IN **HAZARDOUS AREAS AND INTRINSIC SAFETY** FOR ENGINEERS AND TECHNICIANS

### 12 MODULES OVER 3 MONTHS

For upcoming start dates, please view our course schedule at:  
<http://www.eit.edu.au/schedule>

### YOU WILL LEARN HOW TO

- Use correct hazardous areas terminology and definitions
- Explain the responsibilities of hazardous area owners and equipment suppliers
- Explain how apparatus is made safe and suitable for use in hazardous areas
- Provide an understanding of the different types of protection
- Be exposed to simple area classification schemes
- Examine different approaches for selection of types of protection
- Compare techniques used for power and instrumentation applications
- Explain how marking and identification of such apparatus is applied
- Understand the requirements for maintenance of such apparatus
- Understand the requirements for inspection in hazardous areas
- Discuss how work permit systems must be adopted for hazardous area working
- Discuss and compare the advantages and disadvantages of different types of protection in given applications
- Compare certification and approval concepts
- Effectively communicate with others on such safety issues

Presented by  
**Geoff  
Bottrill**

HNC, DMS, MIEE



### SECURE YOUR PLACE NOW!

Contact [eit@eit.edu.au](mailto:eit@eit.edu.au) for an application form or more information.



# BENEFITS OF LIVE eLEARNING

- Attend lessons in an online classroom with your instructor and fellow students
- Upgrade your skills and refresh your knowledge without having to take valuable time away from work
- Receive information and materials in small, easy to digest sections
- Learn while you travel – all you need is an Internet connection
- Have constant support from your course instructor and coordinator for the duration of the course
- Interact and network with participants from around the globe and gain valuable insight into international practice
- Learn from international industry experts, based around the globe
- Live interactive webinars, not just a 'book on the web'
- Revisit recordings of webinars whenever and as often as you wish
- Receive a certificate of completion for Continuous Professional Development (CPD) purposes

## PRESENTATION FORMAT

The course features real-world applications and uses a blended approach involving self-study, interactive online webinars and homework assignments with a mentor on call. The course consists of 12 modules, over a period of 3 months.

Some modules may involve a practical component or group activity. For each module there will be an initial reading assignment along with coursework, quizzes or problems to be handed in and in some cases practical exercises. Participants will have ongoing support from their instructor and course coordinator.

Course reading material will be delivered in electronic (PDF) format in advance of online presentations. Presentations and group discussions will be conducted using a live interactive software system. Assignments will be submitted electronically and wherever possible, practical exercises will be conducted using simulation software and remote labs.

## LIVE WEBINARS

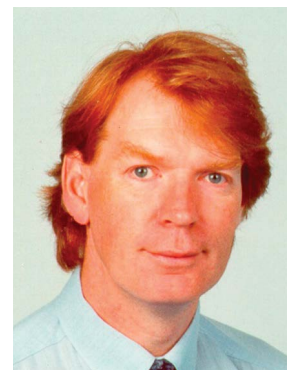
During the course you will participate in 6 live interactive sessions with the instructor and other participants from around the world. Each webinar will last approximately 90 minutes, and we take student availability into consideration wherever possible before scheduling webinar times. Contact us for details of webinar session scheduling. All you need to participate is an adequate Internet connection, a computer, speakers and, if possible, a microphone. The software package and setup details will be sent to you prior to the first webinar.

*Please note: Webinars may last up to 2 hours depending on student interaction and level of content.*

## PRESENTED BY GEOFF BOTTRILL

HNC, DMS, MIEE  
Senior Hazardous Areas Engineer

Geoff has been working in the instrumentation, measurement and control fields for over twenty-five years and has spent the past fifteen years specializing in Hazardous Areas, Intrinsic Safety and Instrumentation Drawings. Geoff began his career at Kent Instruments, as a service engineer working in both the UK and East Africa. His experience ranges from systems design functions and on-site trouble shooting to technical and commercial customer support.



Geoff has taken on the responsibility of mentoring engineers in training, in addition to the presentation of engineering programs in the process control and measurement field. His positive interactive approach to teaching has made him popular with students worldwide.

## 12 MODULES OVER 3 MONTHS

### OVERVIEW

This course provides a comprehensive technical approach to hazardous areas. It explains the subject of explosion protection applied to electrical equipment in such areas. The course offers detailed explanations of the principles involved, the techniques used, the management structures and requirements to comply with the harmonized international standards that are now in place.

Where potentially flammable atmospheres are encountered in industrial processes, area classification is mandatory as part of a risk assessment for the management of health and safety; the issues are examined by providing the opportunity to apply this process and understand the importance and extent of the co-operation of the disciplines involved.

Requirements of inspection and maintenance are examined to show the importance of their effectiveness once the correct installation has been properly achieved, and to enable management to form a structured and effective regime to assure safety.

It should be noted that this course would also be appropriate for supervisors and managers, with the emphasis on outlining the management responsibility and enabling them to complement and accommodate the needs of technical staff beneath them. It is a common problem that technical staff are trained in what needs to be done but their management does not appreciate this or understand it. This course will address these shortcomings.



### INCLUDES 4 FREE REFERENCE MANUALS

VALUED AT OVER US\$400

YOU WILL HAVE ACCESS TO 4 OF OUR UP-TO-DATE TECHNICAL eBOOKS.

- Practical Hazardous Areas for Engineers and Technicians [HZ]
- Practical Intrinsic Safety for Engineers and Technicians [IS]
- Practical Instrumentation for Automation and Process Control [IP]
- Practical Hazops, Trips and Alarms [HQ]

These eBooks are NOT required for the course – they are a bonus resource to aid you in your career. All required reading materials will be provided electronically in smaller, easy-to-read sections, in the online student portal throughout the course.

*Please note: Students can also purchase the technical manuals both in hard copy and electronic format at a reduced fee.*



Over 1400 pages of tables, charts, figures and handy hints

# COURSE OUTLINE

## UNIT 1: BACKGROUND AND HISTORY

- The need for explosion protection
- Lessons from disaster investigation
- Concept of certification
- Risk assessment

## UNIT 2: IGNITION CHARACTERISTICS

- Fire triangle
- Flammability characteristics
- Ignition sources
- Apparatus grouping

## UNIT 3: AREA CLASSIFICATION THEORY

- Objectives
- Terminology and definitions
- Sources of release and ventilation
- Zoning
- Presentation, communication and monitoring
- Responsibilities
- Types of protection suitability

## UNIT 4: AREA CLASSIFICATION PRACTICE

- Process of decision making
- Assessment and calculation
- Other 'codes of practice'
- Examples and tabulations

## UNIT 5: Ex d

- Flameproof
- Theory of operation
- Flamepath joint types
- Dimensions and condition
- Apparatus and component certification

## UNIT 6: Ex i AND SYSTEMS

- Intrinsic safety
- Simple apparatus
- Apparatus and system concepts
- Interfaces
- Apparatus matching
- Descriptive system documentation

## UNIT 7: Ex e AND Ex n

- Increased safety
- Limitations of use
- Insulation and connection integrity
- Enclosure requirements
- Non-incendive
- The difference in approach

## UNIT 8: Ex TYPES: p, o, q, m AND s

- Features of these other types of protection
- Pressurization and purging, oil immersion, sand-filling and encapsulation.
- Special protection
- Combined protection types

## UNIT 9: INSTALLATION

- General requirements
- Information flow
- Cabling requirements
- Electrical protection
- Earthing and bonding
- Specific requirements for different types of protection

## UNIT 10: INSPECTION

- General requirements
- Periodicity and grade
- Scheduling
- Maintenance
- Responsibilities
- Testing and fault-finding issues

## UNIT 11: CERTIFICATION AND MARKING

- Summary of certification
- Marking of older apparatus
- Types of certificate and information contained
- Conditions placed on the use of apparatus
- Multiple certification techniques and benefits

## UNIT 12: EUROPEAN ATEX REQUIREMENTS

- ATEX and the international standards
- Product marking
- "Product" directive
- "Workers" directive (The DSEAR in UK)

Please note: Course content is subject to change. Due to rapidly changing technology and based on feedback from students and instructors, EIT courses are continuously being updated and improved.

# HOW WE COVER ALL THIS MATERIAL

There is a considerable amount of useful practical material to cover in this three month course. To ensure you get the maximum value from the course, we provide highly interactive tutorial-lecture sessions where the instructor covers the key elements of the course in a web conferencing format which takes between 45 to 60 minutes with question and answer discussions taking a further 30 minutes. We recommend investing between 5 and 8 hours of study per week (including the live webinars). In addition, we provide detailed manuals, software (depending on the topic), recordings and short videos, which you examine at your convenience. You will then test your knowledge through a sequence of online quizzes and assignments. Throughout the course you will receive ongoing assistance from your highly experienced instructor and dedicated eLearning co-ordinator who are only an email or phone call away.

# HARDWARE AND SOFTWARE REQUIREMENTS

All you need to participate is a computer with an adequate Internet connection, speakers and, if possible, a microphone.

The software package and setup details will be sent to you on the course start date.

# ENTRANCE REQUIREMENTS

Some practical work experience in some of these topics would obviously be advantageous.

# PRACTICAL EXERCISES

Where possible, throughout the course you will participate in hands-on exercises using simulation software or remote labs, which will help you put theory to practice immediately!

## CERTIFICATION

Participants completing and achieving at least 50% or more in each assignment and 100% in each quiz, as well as attending 65% of the live webinars, will receive the Engineering Institute of Technology Professional Certificate of Competency in Hazardous Areas and Intrinsic Safety for Engineers and Technicians.



Certificates are provided in electronic format. Hard copies are available for an additional fee, contact us for details.

# GROUP TRAINING

All our short courses are available for delivery 'on demand' for groups.

Online "Group Courses" can be shortened, lengthened, or can even be presented in a classroom.

"Group Courses" are perfect for in-company/in-house training and can be fully tailored.

For a summary of COST SAVINGS, a full list of topics and delivery options, please email Kevin Baker: [training@eit.edu.au](mailto:training@eit.edu.au) or contact our nearest office: [www.eit.edu.au/administration](http://www.eit.edu.au/administration)