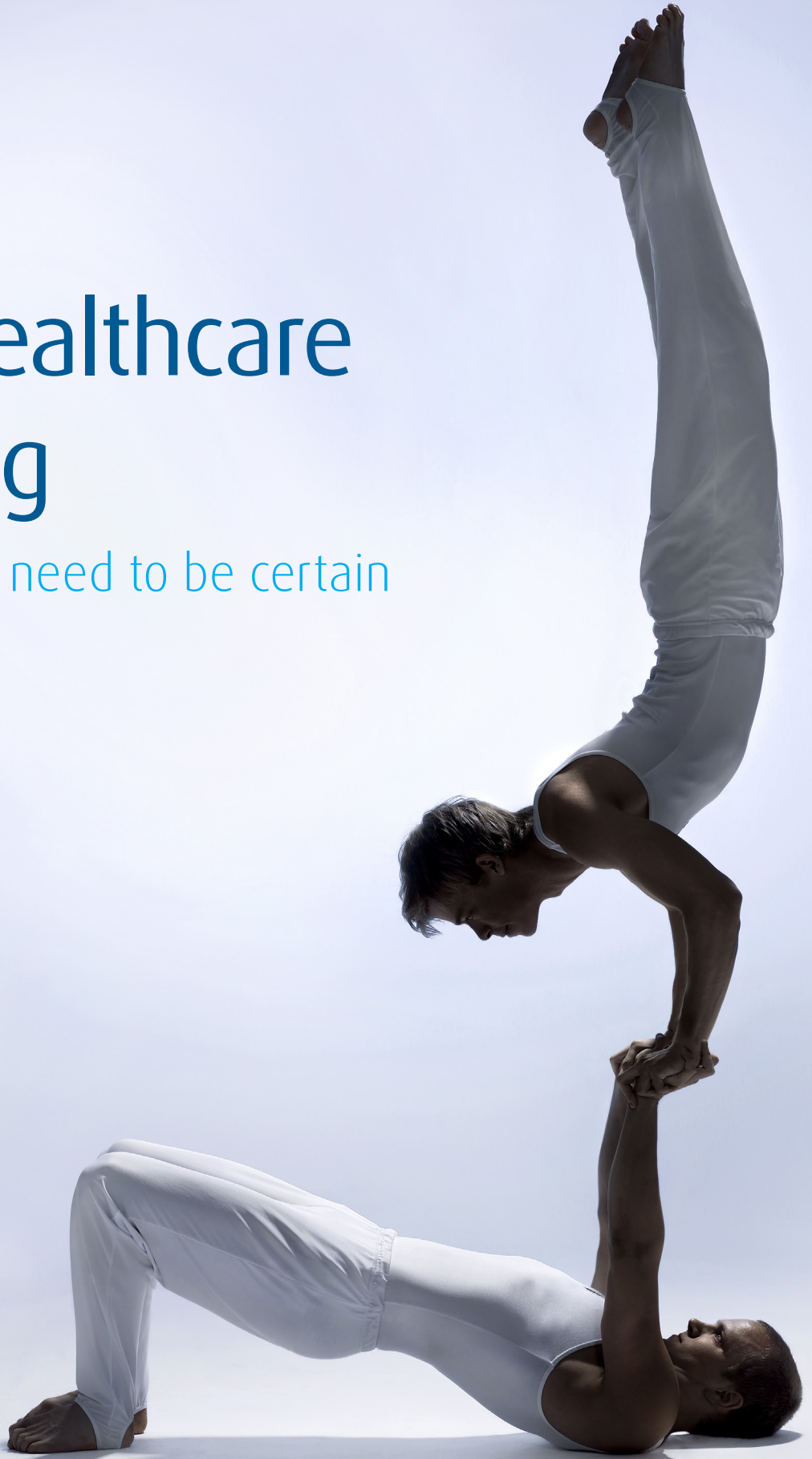


# BOC Healthcare Training

Because you need to be certain





# Medical Engineering Services

Medical Engineering Services has been designed to ensure the highest level of patient safety. To us this means establishing pharmaceutical quality levels in the complete medical gas stakeholder chain all the way to the patient. In other words, a comprehensive portfolio of services taking care of all your needs to ensure fail safe delivery, installation, maintenance and management of your medical gas infrastructure.

## Training

We are a BTEC accredited training centre with Edexcel and provide a comprehensive range of training programmes that will provide you with the learning outcomes required by HTM 02-01. The training courses that we provide are split into two categories:

- Vocational and Safety
- Medical Engineering: Medical Gas Pipeline System (MGPS)

## Vocational and Safety Training

The vocational and safety training programmes are designed for staff who require basic knowledge in the safe use, storage and handling of medical gases, cryogenics and emergency actions for medical gas pipeline systems (MGPS) and cylinders. Each course comprises multiple modules designed to ensure the needs of a particular staff group are met.

### Medical Gas Safety Course: Nurses

#### Audience

Designed for nursing staff who have responsibility for the safe use and administration of medical gases.

#### Objective

The course will emphasise the roles, responsibilities and procedures required to ensure best practice in the safe use and application of medical gases and associated equipment.

#### Course Detail

A three hour training course includes tuition, course notes, practical demonstration and assessment. It is normal to run two consecutive courses on the same day with a maximum of fifteen delegates per course.

#### Course Programme and Learning Outcomes

Upon completion, delegates will be trained to:

- Define a medical gas, especially in the context of its role as a medicine
- List medical gases in common use
- Describe the dangers of medical gases and take appropriate precautions to ensure safety during their use
- Identify a range of medical gas cylinders by size, valve type and colour-coding
- Handle, move and, where relevant, store medical gas cylinders safely
- Prepare a medical gas cylinder for use, connect it to a piece of medical equipment and, when empty, take the cylinder out of use, with due regard to any relevant local labelling requirements
- Identify faulty and incident cylinders and take appropriate action
- Identify and operate medical gas pipeline terminal units and flexible, colour-coded hoses



### Medical Gas Safety Course: Designated Medical or Nursing Officer

#### Audience

This course is designed for clinical staff taking the role of Designated Medical or Nursing Officer, as defined by HTM 02-01, having specific responsibilities with regard to the management of the Medical Gas Pipeline System in the event of an interruption of supply.

#### Objective

To train the Designated Medical or Nursing Officer to a level of competence that allows the safe and effective management of medical gases at ward/department level.

#### Course Detail

This three hour course includes tuition, course notes, practical demonstration and assessment. It is normal to run two consecutive courses on the same day with a maximum of fifteen delegates per course.

#### Course Programme and Learning Outcomes

This course will enable delegates to help reduce accidents and incidents by:

- Distinguishing between “normal” and “fault” medical gas alarm indications
- Deal with damage to terminal units and serious gas leaks
- Using an AVSU for emergency isolation of a medical gas supply
- Reacting correctly in the event of fire
- Reacting correctly in the event of total electricity supply failure
- Reacting correctly in the event of total or partial gas supply failure
- Identifying a contaminated gas supply
- Plan effective remedial actions to deal with shutdown or failure of medical gas systems in order to maintain patient safety
- Permit isolation of a medical gas system in accordance with the MGPS permit-to-work system
- Accept an MGPS back into service following maintenance, repair or modification by correct use of the MGPS permit-to-work system
- Use and maintain effectively an active AGSS in an operating environment
- Identify fault conditions on an active AGSS and take appropriate remedial action to ensure operating staff and patient safety

### Medical Gas Safety Course: Midwives/Community Nurses

#### Audience

This course is designed for those midwives or community nurses working within the community who administer medical gases and require knowledge in the safe handling, use and transportation of medical gas cylinders in vehicles.

#### Objective

The course will emphasise statutory requirements and best practice in the use and management of cylinders outside a healthcare facility. It will also provide information on the clinical use of medical gases, associated equipment and emergency procedures.

#### Course detail

A two hour training course includes tuition, course notes, practical demonstration and assessment. It is normal to run two or three consecutive courses on the same day with a maximum of fifteen delegates per course.

#### Course Programme and Learning Outcomes

Upon completion, delegates will be trained to:

- Define a medical gas, especially in the context of its role as a medicine
- List medical gases in common use
- Describe the dangers of medical gases and take appropriate precautions to ensure service user and staff safety during their use
- Identify a range of medical gas cylinders by size, valve type and colour-coding
- Handle, move and, where relevant, store medical gas cylinders safely
- Prepare a medical gas cylinder for use, connect it to a piece of medical equipment and, when empty, take the cylinder out of use, with due regard to any relevant local labelling requirements
- Identify faulty and incident cylinder and take appropriate action
- Transport of cylinders in vehicles
- Connect and operate demand valves, cylinders and terminal units



## Medical Gas Safety Course: Designated Porter

### Audience

This course is designed to provide porters with the knowledge required for the role of designated porter, providing the service of storage, transportation of medical gas cylinders and the replacement of cylinders on manifolds within the healthcare environment. This course is also particularly relevant to some estates engineering/maintenance staff with responsibility for medical gases.

### Objective

The course will provide information on potential hazards, risk reduction, emergency procedures, roles and responsibilities for the safe use and handling of medical gases within the healthcare environment.

### Course Detail

A three hour training course includes tuition, course notes, practical demonstration and assessment. It is normal to run two consecutive courses on the same day with a maximum of fifteen delegates per course.

### Course Programme and Learning Outcomes

Upon completion, delegates will be trained to:

- List the properties and hazards of a range of medical gases
- Identify a range of medical gas cylinders by colour code, size and other labelling, and select cylinders in accordance with the needs of clinical/medical/engineering requirements
- Identify and describe the major components of pressurised gas systems and, in particular, a hospital MGPS
- Handle and transport pressurised gas cylinders safely
- Identify a range of patient-connected equipment requiring cylinder supplies of gas
- Connect and disconnect safely pressurised gas cylinders from plant, manifolds and user equipment
- Understand and respond to pressurised system alarms, hazards and emergencies, and observe local reporting procedures
- Replenish and operate (where directed) emergency reserve supply systems in accordance with local estates directives

## Medical Gas Safety Course: Instructor Training

### Audience

This course is aimed at staff nurse level or above and senior porters, who have responsibility for training other staff in the safe use and administration of medical gases to service users within the healthcare environment. It is important that these trainers are competent in the delivery of classroom style presentations.

### Objective

The course will provide the trainer with information on potential hazards, risk reduction, emergency procedures, roles and responsibilities for the safe use of medical gases. It is designed to give practical solutions to increase trainer knowledge of everyday duties and to impart this knowledge to other users.

### Course detail

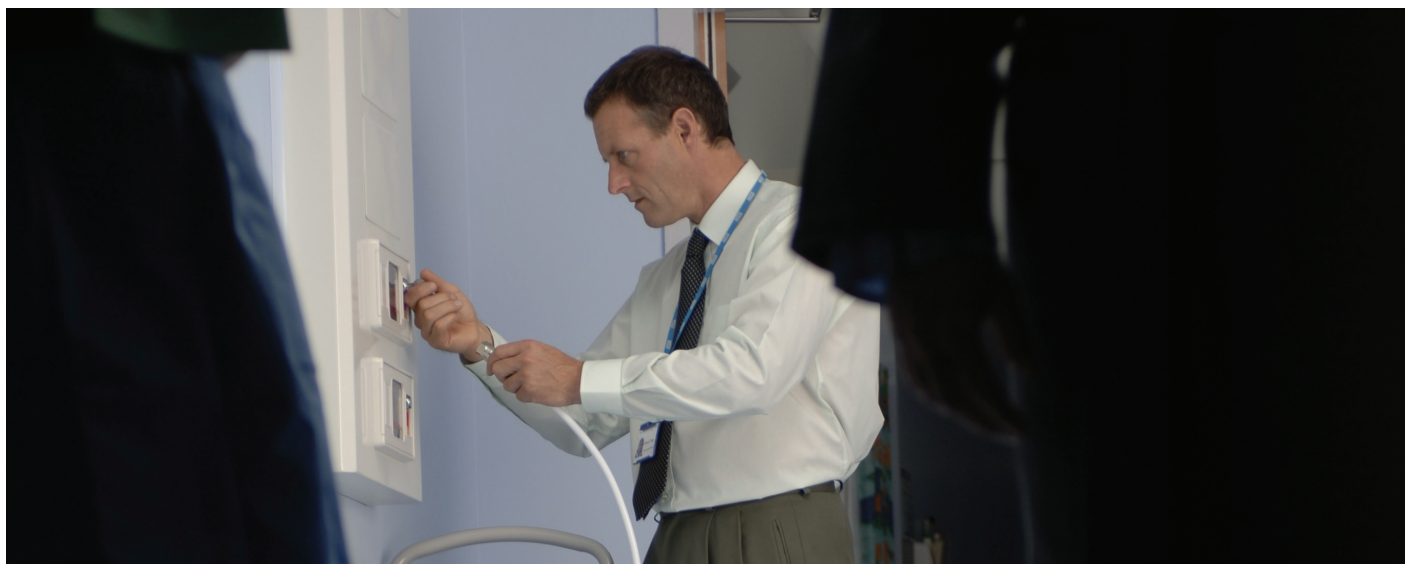
A two day course includes tuition, course notes and practical demonstration. A formal assessment will be required and this will involve the delegate delivering a presentation, completing a practical assessment and an examination.

### Course Programme and Learning Outcomes

Upon completion, delegates will be trained to:

- Understand the reasons for training
- Demonstrate a knowledge and understanding of medical gases, cylinders and associated hazards
- Know how to deal effectively with the management of cylinders and medical gases on a daily basis
- Be able to impart the knowledge learnt to peers through practical demonstration
- Ensure best practice in the use and handling of medical gases
- Know how to deal with an emergency relating to medical gas cylinders





## Medical Gas Safety Course: Cryogenic Safety Training

### Audience

This course is designed for staff employed in the storage, handling, decanting or transportation of liquid nitrogen dewars.

### Objective

The course will provide information on potential hazards, risk reduction, emergency procedures, roles and responsibilities for the safe use and handling of liquid nitrogen within the healthcare environment.

### Course Detail

A three hour training course includes tuition, course notes, practical demonstration and assessment. It is normal to run two consecutive courses on the same day with a maximum of ten delegates per course.

### Course Programme and Learning Outcomes

Upon completion, delegates will be trained to:

- List the properties and hazards of liquid nitrogen
- Identify a range of medical liquid nitrogen containers and their associated components
- Handle and transport liquid nitrogen safely
- Identify the correct PPE required for using and transporting liquid nitrogen
- Filling and decanting from liquid nitrogen containers safely
- Understand and respond to oxygen depletion alarms, hazards and emergencies, and observe local reporting procedures

## E-learning

With the ever increasing demands on an individual, finding time to release people for training is very difficult. BOC Healthcare have developed an e-learning solution to allow staff to learn about basic safety in their own time.

The e-learning package includes a “learning management system” so that managers can see who is at what stage of learning.

### Audience

Aimed at nurses and porters who have responsibility for the safe handling and use of medical gases within the healthcare environment.

### Objective

E-learning provides essential managed training through the internet. This type of delivery method allows greater flexibility as it is available 24 hours a day, 7 days a week. It is accessible from any computer with a suitable internet connection.

### For the manager

The Learning Management System records course progression details and staff results, enabling performance reports to be produced. This type of training provides a method of managing training across single and multiple sites. Courses are divided into interactive learning units with short confirmatory tests at the end of each section. There is a multiple choice test at the end of each course; upon successful completion a certificate can be printed locally. Each individual learner is provided with a unique user name and password for course security.

### Platform

The courses can be hosted within either our own virtual learning environment or by the NHS Core Learning Unit.



## Medical Engineering (MGPS) Training Courses

### Medical Engineering Course: Authorised Person Training- Comprehensive

#### Audience

Designed for those given the responsible role of an Authorised Person (MGPS) defined in HTM 02-01 to manage the medical gas system and whom their Executive Manager will appoint in writing. It will also provide valuable knowledge for personnel in other departments requiring an understanding of piped medical gas systems.

#### Objective

The course will emphasise the management of fixed medical gas pipelines in line with HTM 02-01. The course is designed to give practical solutions to increase knowledge for delegates to use in their everyday duties covering the use of the Permit to Work System, the requirements of an operational policy and the control of MGPS maintenance.

#### Course Detail

A five day non residential course, includes tuition and comprehensive course notes. The course will involve completion of group and individual exercises as part of the BTEC Professional Level 4 assessment process. The maximum number of delegates for this course is twelve.

#### Course Programme and Learning Outcomes

- Introduction to HTM 02-01
- Understanding the roles and responsibilities of medical gas stakeholders
- Overview of medical gas systems and safety aspects
- Understanding the management of medical gas cylinders
- Understanding of the operation of medical gas supply units
- Review of the emergency supply provision on site
- Responsibilities for the provision of an operational policy and other documentation
- MGPS design, installation, validation and verification
- Compliance to the Permit to Work System

### Medical Engineering Course: Authorised Person Training – Refresher

#### Audience

Designed for those given the responsible role of an Authorised Person (MGPS) who have received AP training before and who require refresher training as defined in HTM 02-01 and whom their Executive Manager will re-appoint in writing. It will also provide valuable knowledge for personnel in other departments requiring an understanding of piped medical gas systems.

#### Objective

The course will emphasise the management of fixed medical gas pipelines in line with HTM 02-01. The course is designed to give practical solutions to increase knowledge for delegates to use in their everyday duties covering the use of the Permit to Work System, the requirements of an operational policy and the control of MGPS maintenance.

#### Course Detail

A three day non residential course, includes tuition and comprehensive course notes. The course will involve completion of group and individual exercises as part of the BTEC Professional Level 4 assessment process. The maximum number of delegates for this course is twelve.

#### Course Programme and Learning Outcomes

- Review of HTM 02-01
- Understanding the roles and responsibilities of medical gas stakeholders
- Overview of medical gas systems and safety aspects
- Understanding the management of medical gas cylinders
- Understanding of the operation of medical gas supply units
- Review of the emergency supply provision on site
- Responsibilities for the provision of an operational policy and other documentation
- MGPS design, installation, validation and verification
- Compliance to the Permit to Work System



## Medical Engineering Course: Authorised Person – Dental Air & Vacuum Systems

### Audience

An Authorised Person as defined in HTM 02-01 is responsible for the everyday management of the pipework system. If this extends to the Dental Air and Vacuum Systems (DAVS) then the Authorised Person should assume responsibility for it. In summary the Authorised Person (MGPS), senior dental partner, dental practice principal and when the above does not fit exactly someone else defined in the Operational Policy, possibly PCT director, practice manager or senior maintenance engineer.

### Objective

The course will emphasise the management of fixed DAV pipelines. It is designed to give practical solutions to increase knowledge for delegates to use in their everyday duties covering the statutory regulations including amalgam separation, water supply systems, COSHH, the use of the Permit to Work System, preparation of an Operational Policy and the control of DAVS maintenance.

### Course Detail

A two day non residential course, includes tuition and comprehensive course notes. The course will involve completion of group and individual exercises as part of the assessment process. The maximum number of delegates on this course is twelve.

### Course Programme and Learning Outcomes

- Introduction to dental supplement and statutory guidance
- The role of the Authorised Person
- Safety with medical gases
- Understanding medical gas cylinder management
- Overview and maintenance of dental compressed air and vacuum systems
- The control of work system
- Amalgam separation
- Water supplies contamination categories
- Managing your COSHH requirements
- Operational Policy guidelines

## Medical Engineering Course: Competent Person (MGPS) Installation

### Audience

This course covers the needs of those personnel installing and testing medical gas pipeline systems and who are to be assessed as Competent Persons (MGPS) as defined by HTM 02-01. It is ideally suited to installation staff of contractors or directly employed hospital staff who are involved in smaller scale installation work e.g. the addition of terminal units and emergency repair to pipelines.

### Objective

The course will emphasise the maintenance of fixed medical gas pipelines in line with HTM 02-01. The course is designed to give practical solutions to increase knowledge for delegates to use in their everyday duties covering the operation and maintenance of the system and its components, installation of systems and the use of the Permit to Work System.

### Course detail

A five day non residential course including tuition and comprehensive course notes. The course will involve completion of group and individual exercises as well as a practical brazing assessment. These will all form the assessment process.

### Course Programme and Learning Outcomes

- Review of HTM02-01
- Understanding the roles and responsibilities of medical gas stakeholders
- Overview of medical gas systems and safety aspects
- Understanding of the operation and maintenance of medical gas supply units
- Understanding the emergency supply provision on site
- Responsibilities for the provision of method statements, risk assessments and other relevant documentation
- MGPS design, installation, validation and verification
- Compliance to the Permit to Work System
- A guide to on site brazing techniques and demonstration
- Practical brazing of test pieces and inspection





### Medical Engineering Course: Competent Person (MGPS) Maintenance

#### Audience

This course covers the needs of those personnel maintaining medical gas pipeline systems and who are to be assessed as Competent Persons (MGPS) as defined by HTM 02-01. It is ideally suited to installation staff of contractors or directly employed hospital staff who are involved in smaller scale maintenance work e.g. emergency repair to pipelines.

#### Objective

The course will emphasise the maintenance of fixed medical gas pipelines in line with HTM 02-01. The course is designed to give practical solutions to increase knowledge for delegates to use in their everyday duties covering the operation and maintenance of the system and its components and the use of the Permit to Work System.

#### Course detail

A three day non residential course including tuition and comprehensive course notes. The course will involve completion of group and individual exercises as well as a practical assessment. These will all form the assessment process. The maximum number of delegates for this course is twelve.

#### Course Programme and Learning Outcomes

- Review of HTM 02-01
- Understanding the roles and responsibilities of medical gas stakeholders
- Overview of medical gas systems and safety aspects
- Understanding of the operation and maintenance of medical gas supply units
- Understanding the emergency supply provision on site
- Responsibilities for the provision of method statements, risk assessments and other relevant documentation
- MGPS maintenance procedures and testing
- Compliance to the Permit to Work System

### Medical Engineering Course: Competent Person (MGPS) Maintenance Lite

#### Audience

Designed for those staff employed to give your facilities first line break-down defence and emergency repair of the Medical Gas Pipeline System they will assume a limited role of Competent Person (MGPS) and having responsibility for performing basic everyday maintenance of piped medical gas systems. The course is ideally suited to directly employed healthcare estates personnel to be assessed as Competent Persons (MGPS) by their Authorised Person (MGPS) but who have no responsibility for the installation, major maintenance and testing of medical gas pipeline systems.

#### Objective

The course will emphasise the maintenance of medical gas pipeline terminal units and emergency actions to be performed by the Competent Person. The course is designed to give practical solutions to increase knowledge for delegates to use in their everyday duties covering the operation of the system and identifying component failures to report to a main contractor.

#### Course detail

A one day non residential course including tuition and comprehensive course notes. It will involve completion of group and individual exercises with a practical assessment and introduction to the Permit to Work System. These will all form the assessment process. The maximum number of delegates for this course is twelve.

#### Course Programme and Learning Outcomes

- Introduction to HTM 02-01 and general standards
- Review of the Medical Gas Pipeline System
- Safety with medical gases site visit to medical gas store, manifold room etc
- The role of the Competent Person
- Maintenance and repair of terminal units
- First line defence for medical air and Vacuum systems
- Emergency supply provision
- Engineering testing of terminal units
- The MGPS Permit to Work System



### Medical Engineering Course: Medical Gas Hose Manufacture

#### Audience

Staff employed usually in EBME departments, having responsibility for manufacturing medical gas hoses on site. The course is ideally suited to healthcare personnel who also inspect, test and replace medical gas hoses.

#### Objective

The course will emphasise the manufacture and testing medical gas hoses in line with EN 739. The course is designed to give knowledge of medical gas hoses, their safe manufacture and use. Delegates will learn how to identify and use manufacturing equipment, test equipment, and gas specific connectors and correct methods of labelling according to the EN standards.

#### Course detail

A one day non-residential course. The course will involve completion of group and individual exercises as well as a practical assessment with a short test at the end. These will all form the assessment process.

#### Course Programme and Learning Outcomes

Upon completion, delegates will be trained to:

- Identify pipeline components and equipment used to manufacture and test hoses
- Recognise hose colour codes
- Perform tests to distinguish between and confirm gas specific connections
- Examine, evaluate and record suitability of hose assemblies
- Use equipment to make up hoses
- Manufacture hose assemblies

### Medical Engineering Course: Ambulance MGPS Training

#### Audience

BOC Healthcare are a BTEC accredited training centre with Edexcel and can provide a comprehensive training programme for personnel installing and testing the Medical Gas Pipeline Systems (MGPS) of ambulances.

#### Objective

The course is designed specifically for maintenance personnel to be competent at carrying out quarterly and yearly testing and repairs to MGPS in ambulances as required by Health Technical Memorandum (HTM) 2022 supplement No. 2. EN standards. HTM 2022 Supplement no. 2 states: 'The entire system should be tested at 12-monthly intervals or following any repair to the system' and routine inspection and maintenance at quarterly intervals.

#### Course detail

This is a one day course including tuition and comprehensive course notes. It will involve completion of group and individual exercises with a practical assessment and introduction to the Permit to Work System. The maximum number of delegates for this course is 8.

#### Course Programme and Learning Outcomes

Upon completion, delegates will be trained to:

- Introduction to HTM 2022 supplement 2 and general standards
- Review of Medical Gas Pipeline System
- The role of the Competent Person
- Maintenance and repair of terminal units
- Inspection, Testing and replacement of "Low pressure hoses"
- Engineering testing of system and terminal units
- The MGPS Permit to Work System
- Materials compatibility



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