



HTM02-01 Design Consulting Specialist in HTM02-01 Design.

+66(0)63 082 9692

kevin@htm02-01designconsult.com

<https://htm02-01designconsult.com/>



**ACCREDITED
ACTIVITY**
6 CPD CREDITS
#1020026
Verify @ <https://thecpdregister.com>



HTM02-01 Section 3 Course Syllabus

1. Course Identification

- Course Title: HTM 02-01 Section 3: Provision of Terminal Units, AVSUs, LVAs & Local Alarms
- CPD Credit Value: 6 Hours
- Course Level: Intermediate / Advanced
- Total Duration: 1 Day

2. Course Aim

To equip healthcare estates professionals, engineers, and clinical leads with the specialist knowledge required to design, specify, and manage the patient-side components of a Medical Gas Pipeline System (MGPS) in full compliance with HTM 02-01 Section 3, ensuring patient safety, clinical efficacy, and operational resilience.

3. Intended Learning Outcomes (ILOs)

Upon successful completion of this course, delegates will be able to:

- ILO 1: Explain the purpose, scope, and clinical safety impact of HTM 02-01 Section 3.
- ILO 2: Specify and design the correct installation, arrangement, and spacing of terminal units, including compliance with standards (BS EN 9170-1:2020), prohibited installations, and integration with other services.
- ILO 3: Design and specify the location, arrangement, and labelling of Area Valve Service Units (AVSUs) and Local Alarm Indicator Panels to meet isolation, safety, and visibility requirements.
- ILO 4: Identify the requirements for Anaesthetic Gas Scavenging (AGS), specialist gases, and special areas (Critical Care, Dental, Workshops).
- ILO 5: Determine the correct provision of components by applying HTM 02-01 Table 11 principles to different clinical areas.
- ILO 6: Apply critical safety considerations and best practices for component installation and system integrity.

4. Target Audience

- Medical Gas Design Engineers & Consultants
- Authorised Persons (MGPS) & Competent Persons (MGPS)
- Healthcare Estates & Facilities Managers
- Clinical Engineers (EBME)
- Senior Clinical Staff (Theatres, ICU) involved in estate projects
- Project Managers (Healthcare Construction)
- Infection Control Practitioners involved in design reviews

5. Pre-requisites

A foundational understanding of Medical Gas Pipeline Systems (MGPS) is beneficial. Delegates should be professionally involved in the design, installation, validation, or management of healthcare engineering systems.

6. Course Delivery & Assessment

- Delivery Method: In-person or virtual classroom. A blend of expert-led presentation, interactive group workshops, case study analysis, and guided discussion.
- Learning Materials: Comprehensive delegate workbook containing key HTM 02-01 extracts, diagrams, checklists, and workshop activities.
- Assessment: Formative assessment through workshop exercises. Summative assessment via a final written knowledge check (multiple-choice/short answer) to verify attainment of ILOs and support CPD certification.

7. Detailed Syllabus & Session Plan

Module 1: Introduction to HTM 02-01 Section 3 (30 mins)

- Topic 1.1: Course Overview: The Critical Role of Patient-Side MGPS Components.
- Topic 1.2: Purpose and Scope of HTM 02-01 Section 3.
- Topic 1.3: Key Components: Terminal Units, AVSUs, LVAs, and Local Alarms.
- Topic 1.4: Clinical Safety Impact of Proper Design and Installation.

Module 2: Terminal Unit Fundamentals & Core Installation Requirements (60 mins)

- Topic 2.1: Core Installation Principles: Positioning, Mounting (Surface/Flush), and Integration.
- Topic 2.2: Critical Installation Details: Concentricity Requirements, OR Pendant & UCV Planning.
- Topic 2.3: Prohibited Installations: Floor-Mounted Units and Incorrect Vacuum Systems.



HTM02-01 Design Consulting Specialist in HTM02-01 Design.

+66(0)63 082 9692

kevin@htm02-01designconsult.com

<https://htm02-01designconsult.com/>



**ACCREDITED
ACTIVITY**
6 CPD CREDITS
#1020026
Verify @ <https://thecpdregister.com>



- Workshop 1: Identifying Compliance Issues in Core Installation Scenarios.

Module 3: Terminal Unit Standards and Special Requirements (60 mins)

- Topic 3.1: Mandatory Standards: BS EN 9170-1:2020 Compliance and Probe Specifications.
- Topic 3.2: Anaesthetic Gas Scavenging (AGS): Requirements, Exceptions (Recovery), and Alternatives (Ventilation).
- Topic 3.3: Special Areas: Requirements for Dental, EBME/SSD Workshops, and Servicing.
- Topic 3.4: Terminal Unit Strength Requirements: Lateral and Axial Force Testing.

Module 4: Terminal Unit Arrangement, Gas Types & Mounting Specifications (90 mins)

- Topic 4.1: Mandatory Gas Sequencing for Horizontal, Vertical, and Circular Arrays.
- Topic 4.2: Gas Mixture Specifics: Helium/Oxygen and Obsolete Mixtures.
- Topic 4.3: Mounting Height Specifications for Wall, Bedhead, and Pendant Units.
- Topic 4.4: Pressure Loss Considerations and Standards.
- Topic 4.5: Detailed Spacing, Recess, and Clearance Requirements (Clauses 3.13-3.16).
- Workshop 2: Designing and Critiquing Terminal Unit Layouts from Architectural Drawings.

Module 5: AVSUs, Local Alarm Panels & LVAs (60 mins)

- Topic 5.1: AVSUs: Mounting Height, Arrangement, and Critical Care Dual Circuit Considerations.
- Topic 5.2: Local Alarm Indicator Panels: Placement, Visibility, and Mute Switch Accessibility.
- Topic 5.3: Line Valve Assemblies (LVAs): Purpose and Standard Installation Locations.
- Topic 5.4: Case Study: Designing the Isolation and Alarm Strategy for a Clinical Department.

Module 6: Labelling, Identification & Practical Application (60 mins)

- Topic 6.1: AVSU and Critical Care Area Labelling Requirements (Clauses 3.22-3.23).
- Topic 6.2: Applying HTM 02-01 Table 11: Principles for Determining Provision.
- Topic 6.3: Interpreting Table 11 for Key Areas: Operating Departments, Critical Care, Maternity, Wards.
- Workshop 3: Developing a Project-Specific Design Basis for a Given Clinical Area using Table 11.

Module 7: Safety Considerations, Best Practices & Assessment (60 mins)

- Topic 7.1: Terminal Unit & AVSU Safety Priorities and Common Design Errors.
- Topic 7.2: Ensuring System Integrity: Maintenance, Documentation, and Staff Training.
- Topic 7.3: Final Knowledge Check (Assessment).
- Topic 7.4: Course Recap, Q&A, and CPD Certification Closure.

8. Course Leader

The course will be delivered by an Authorised Person (MGPS) with extensive practical experience in the design and validation of healthcare MGPS, and a proven record in delivering technical training.

9. Quality Assurance & CPD Certification

Delegates must attend the full course and achieve a pass mark on the final knowledge check to receive a CPD Certificate of Attendance. Participant feedback will be collected and reviewed for continuous course improvement.