



ONE WEEK HYBRID MODE INTERNSHIP IN MEDICAL GAS PIPELINE SYSTEMS

(FOR UNDERGRADUATE BIOMEDICAL ENGINEERING STUDENTS)



MED INSTITUTE OF MEDICAL GAS TECHNOLOGY (MIMGT)

Training Partner of Healthcare Sector Skill Council, Govt. of India

About Us



MED Institute of Medical Gas Technology (MIMGT) is a certified company/institution committed to provide quality services and products related to medical gas pipeline systems (MGPS) and Biomedical Engineering, to enhance quality and safety of healthcare delivery in India. MIMGT offering highly focused skill development programs in Medical Gas Pipeline Systems. We conduct certification programs to produce skilled professionals in MGPS to fulfil growing demands of the healthcare industry. We install and maintain medical gas pipeline infrastructure at hospitals and upgrade the existing ones, in compliance to international quality standards.

About Medical Gas Pipeline Systems

The Medical Gas Pipeline Systems (MGPS) refers to a complete standalone engineering infrastructure that facilitates continuous availability of medical gases required in a hospital. The medical gases include oxygen, compressed air, nitrous oxide, and carbon dioxide. The MGPS supplies vacuum also. The fact that oxygen from MGPS is used in the life supporting ventilators shows its paramount importance. The nitrous oxide is used in anesthesia. Carbon dioxide supply is necessary during endoscopic surgery. Vacuum is necessary in the suction apparatus to remove pooled secretions and blood.

Supplying accurate composition/ concentration (purity) of medical gases at the right pressure forms the basis for the functional operation of ventilators and anesthesia machines in operation theatres, in intensive care units and treatment rooms. Unexpected breakdown of the MGPS is catastrophic as it will throw the patients under critical care to extreme risk. Mishandling and improper maintenance of MGPS may cause fire accidents as the medical gases are highly inflammable. Any inadvertent changes in the purity and pressure of supplied gases may end up with serious medical errors and casualty. Hence, there is an urgent need for trained MGPS taskforce in our country and across the globe.

Detailed Schedule of the Internship

Day 1: In-house lecture session on the principle and operation of the MGPS with live demonstrations

Types of medical gas used in hospitals: Medical Air - Oxygen - Carbon Dioxide – Nitrogen - Nitrous Oxide, Different parts of MGPS: Supply Pipeline or Gas Service Specific Trunk Pipeline - Feeder Pipeline - Distribution Pipeline - Drop pipe, Air compressors, Vacuum pumps, AGSS / WAGD plant system (gas scavenging system), Manifold Systems, Oil & Moisture separator, Filtration systems, Ceiling Pendant Arms, Air Dryer- refrigerant or Desiccant, Medical Gas Source Equipment, Manifold Rooms and Equipment, Medical Gas Alarm Systems, Terminal Units/Patient Room Gas Connections/Medical Gas Outlets, Medical Grade Copper Pipes - Dimensional specifications of pipes, Pigtails and Connectors, Adapters, Zonal Valve Box, Main Line Valve (Source Shut Off Valve), Branch Valves including Riser Valves, Line Valves Assembly (LVA), Zone Valves, Area Valve Service Unit Modules (AVSU), Oxygen Concentrators, Flow Meters, Pressure Gauges and switches, Gas purity meters, Integrated Flow Meter Outlet, Ward Vacuum Unit.

Day 2: In-house lecture session on design & installation of the MGPS

Planning and costing of MGPS installations, Installation of medical gas and vacuum systems covered by the ASSE Series 6000 Standard, Power supply requirements of MGPS, Quality control - Selection of MGPS accessories - ASTM B819-19 Standard Specification for Seamless Copper Tube for Medical Gas Systems, Standard procedures for connecting pipes- Compliance with standards and risk assessment, Breakdown maintenance, Inspection and preventive maintenance of MGPS, Safety considerations and electrical isolation during maintenance, Changing of bacterial filters, Detection of leakages and management, Emergency management – Planning and execution of mock drills, Case studies of accidents caused by faults in MGPS, Commissioning of MGPS.

Day 3: In-house lecture session on the MGPS standards & protocols

ISO 7396-1:2016 Medical gas pipeline systems - Part 1: Pipeline systems for compressed medical gases and vacuum, ISO 80601-2-69:2020 Medical electrical equipment - Part 2-69: Particular requirements for the basic safety and essential performance of oxygen concentrator equipment, Facility Management and Safety standard FMS. 6 - Programme for medical gases, vacuum and compressed air in NABH Standards update 2020 fifth edition, colour coding used in the medical gas pipeline systems, Health Technical Memorandum 02-01, National Fire Protection Association 99 (US), CAN/CSA Z7396.1-17 Medical gas pipeline systems - Part 1: Pipelines for medical gases, medical vacuum, medical support gases, and anaesthetic gas scavenging systems (Canada), Facility Guidelines Institute guideline for MGPS.

Day 4: Onsite training and demonstration of MGPS with focus on dismantling and assembling of outlets and regulators, nitrogen flushing and pipeline welding, pipeline fitting, pressure test - leakage and polarity, Changing of bacterial filters, Troubleshooting and fault-detection.

Day 5: Assessment, valedictory event and feedback

Mode of Evaluation

Close assessment of the knowledge gain and competence via Multiple Choice Questions (MCQs)/ viva voce & an examination of descriptive pattern at the end of the internship.

Nature of Training Offered during the Internship

- ⇒ Total duration of the internship is five days
- ⇒ The hybrid mode internship comprises class room lectures and on site hands on sessions
- ⇒ Internship is enriched with two well-planned case-study assignments
- ⇒ Number of students in each batch is restricted to 24 to enhance the effectiveness

Who can Apply

B.E./B.Tech/ME/M.Tech/MS/MSc Students of Biomedical Engineering /Bioengineering Medical Electronics

How to Apply

Interested students may submit the application in the prescribed format along with a bonafide certificate from their parent institute. An internship fee of Rs. 10000/- should be paid to the following bank account, at the time of physical reporting.

Account holder name : MED Institute of Medical Gas Technology

Bank & Branch : Bank of Maharashtra, Kolenchery

Account No : 60422022100

IFSC : MAHB0002200

Contact Us for further information regarding the internship, travel plan and accommodation



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Scan the QR code for location

