Level One

MODULE 66101-02 – INTRODUCTION TO THE PIPELINE INDUSTRY

1. Explain the basic functions and purposes of pipelines and facilities and identify the characteristics and hazards of common pipeline products.
2. Identify maps and drawings used to depict pipelines and facilities.
3. Explain the roles of control personnel and equipment in the overall operation of a pipeline.
4. Explain liquid pipeline hydraulics and gas pipeline pneumatics.
5. Explain the types and purposes of pipeline equipment.
6. Explain pipeline electrical power systems and corrosion control.
7. Review operations, maintenance, and emergency procedures and perform documentation required for pipeline operations.

MODULE 66102-02 – LIQUID PIPELINE GENERAL ABNORMAL OPERATING CONDITIONS

1. Recognize and react to abnormal facility conditions.
2. Recognize and react to activation of a safety device.
3. Recognize and react to communications failures.
4. Recognize and react to power interruptions.
5. Respond appropriately to fire, explosions, and natural disasters.
6. Recognize and react to pipeline system damage.
7. Recognize and react to unexpected hazardous liquid or carbon dioxide (CO2) leaks.
8. Recognize and react to unexplained pressure deviations.

MODULE 63103-02 – PIPELINE MECHANIC HAND AND POWER TOOLS

1. Safely use and care for pipeline mechanic hand tools.
2. Safely use and care for drill presses, hydraulic presses, and pipe threading machines.
3. Safely use and care for selected sheet metal tools.
4. Identify and explain surface grinders and belt sanders.
5. Identify and explain Woodruff key seaters and key broachers.
6. Safely use and care for bearing heaters and drills and perform precision drilling.

MODULE 63104-02 – PIPING AND MECHANICAL BLUEPRINT READING

1. Identify and explain types and parts of drawings.
2. Read and interpret piping and instrumentation diagrams (P&Ids), plan views, section views, and isometric drawings.
3. Read and interpret machine drawings.
MODULE 63105-02 – TUBING, THREADED PIPE, AND HOSES

1. Identify and explain the materials used in tubing systems.
2. Identify, use, and care for tubing cutters, benders, and flaring tools.
3. Fabricate tubing systems.
4. Identify and explain the materials used in threaded piping systems.
5. Use and care for pipe threading tools.
6. Fabricate threaded piping systems.
7. Identify and select types and sizes of hoses.
8. Maintain hoses used in control systems.

MODULE 63106-02 – FASTENERS

1. Identify and explain threaded and nonthreaded fasteners.
2. Identify and explain insulation fasteners.
3. Install fasteners.

MODULE 63107-02 – IDENTIFY, INSTALL, AND MAINTAIN VALVES (CTS 19.1-19.4)

1. Identify the types of valves used to start and stop flow on a pipeline and regulate flow on a pipeline.
2. Identify and explain the functions of the various types of relief valves.
3. Properly isolate and purge a valve.
5. Winterize valves (CT 19.1).
6. Install threaded and flanged valves.

MODULE 63108-02 – IDENTIFY TYPES OF VALVE ACTUATORS/OPERATORS

1. Identify the types of actuators used to open and close valves.
2. Identify the types of controls used with actuators.
3. Explain the principles used for operation of actuators.
4. Perform general maintenance on actuators.

MODULE 63109-02 – INSTALLING SEALS AND GASKETS

1. Identify and explain types of seals.
2. Remove and install seals.
3. Identify and explain gasket types and materials.
4. Layout, cut, and install gaskets.
Level Two

MODULE 63201-02 – INTRODUCTION TO PNEUMATIC SYSTEMS

1. Explain pneumatic safety.
2. Explain the physical characteristics of gases.
3. Explain the characteristics of natural gas.
4. Explain the pneumatic transmission of energy.
5. Identify and explain types of compressors.

MODULE 63202-02 – INTRODUCTION TO HYDRAULIC SYSTEMS

1. Explain hydraulic system safety.
2. Explain the principles of hydraulics.
3. Identify and explain hydraulic fluids.
4. Identify and explain hydraulic system parts.
5. Identify and explain hydraulic pumps.
6. Identify and explain hydraulic motors.

MODULE 63203-02 – SPECIALTY AND PRECISION TOOLS

1. Identify, use, and care for specialty tools.
2. Identify, use, and care for precision measuring tools.

MODULE 63204-02 – INSPECT AND REPAIR VALVES (CT 20, 21.2, 21.3)

1. Identify the different valve inspection requirements.
2. Describe the routine walk-around inspection requirements for valves or perform a routine walk-around valve inspection (CT 20.1).
3. Describe the external integrity inspections requirements for valves or perform an external integrity valve inspection (CT 20.2).
4. Describe the functional test required for valves or perform a functional valve test (CT 20.3).
5. Describe how to leak test a valve or leak test a valve (CT 20.4).
6. Describe how to disassemble and reassemble a valve or disassemble and reassemble a valve (CT 21.2).
7. Describe the internal inspection requirements of a valve or perform an internal valve inspection (CT 21.3).
8. Describe how to rig a large valve or rig a large valve.

MODULE 63205-02 – MAINTAIN AND REPAIR PRESSURE LIMITING DEVICES AND RELIEF VALVES (CT 22, 23.1, 23.2, AND 24)

1. Identify types of relief valves and pressure limiting devices.
2. Inspect tank pressure/vacuum breaker. Inspect, test, and calibrate HVL tank pressure relief valves (CT 22).
3. Inspect, maintain, and repair relief valves (CT 23.1).
4. Maintain and repair pressure limiting devices (CT 23.2).
5. Inspect, test, and calibrate pressure limiting devices and relief valves (CT 24).
MODULE 63206-02 – INTRODUCTION TO METERING DEVICES AND PROVERS

1. Identify, explain, and/or demonstrate the use of various types of meters.
2. Identify, explain, and/or demonstrate the use of various types of provers.

MODULE 63207-02 – INTRODUCTION TO PUMPS

1. Identify and explain various types of pumps.
2. Explain net positive suction head and cavitation.
3. Install pumps.

MODULE 63208-02 – INTRODUCTION TO GAS COMPRESSORS

1. Identify and explain various types of gas compressors.
2. Explain the function of compressors.
3. Explain the operation of compressors.
4. Identify auxiliary equipment.

MODULE 63209-02 – INSTALL AND MAINTAIN BEARINGS

1. Identify and explain various types of bearings.
2. Explain bearing designation.
3. Remove, troubleshoot, and install bearings.

MODULE 63210-02 – INSTALL MECHANICAL SEALS

1. Identify and explain types of mechanical seals.
2. Explain mechanical seal classification.
3. Remove, inspect, and install mechanical seals.

MODULE 63211-02 – MAINTAIN AND REPAIR DRIVERS

1. Identify types of drivers.
2. Inspect drivers.
3. Replace bearings and seals.
4. Perform preventative maintenance activities.
5. Replace drivers.
Level Three

MODULE 63301-02 – INSTALLING ROTATING EQUIPMENT
1. Identify inspection requirements for an equipment pad.
2. Describe the requirements for equipment base preparation.
3. Inspect equipment prior to installation.
4. Prepare equipment prior to installation.
5. Describe the installation process for rotating equipment.
6. Describe the process to relieve pipe stress from rotating equipment.

MODULE 63302-02 – UNIT ALIGNMENT
1. Recognize and describe the four types of equipment misalignment.
2. Identify the causes of soft foot.
3. Describe the major steps in performing conventional rim-and-face alignment.
4. Describe the major steps in performing reverse dial indicator alignment using the equation method of alignment.
5. Describe the major steps in performing reverse dial indicator alignment using the graphical chart method of alignment.
6. Describe the major steps in performing laser alignment.
7. Identify other laser alignment procedures that may be completed on the machinery trains depending on equipment needs.

MODULE 63303-02 – VIBRATION ANALYSIS
1. Explain the causes of vibration.
2. Explain vibration analysis.
3. Identify and explain the different kinds of basic vibration test equipment.
4. Explain vibration monitoring.
5. Explain field balancing of machines.

MODULE 63304-02 – MAINTAIN, TROUBLESHOOT, AND REPAIR PUMPS
1. Describe the preventive maintenance requirements for a pump.
2. Describe the inspection requirements for a pump.
3. Identify common troubleshooting techniques and problems for a pump.
4. Identify the common steps required to prepare a pump for shutdown for maintenance or repair.
5. Identify the common steps required to remove a pump from a pipeline system for maintenance or repair.
6. Identify the common steps to disassemble and reassemble a pump.
7. Identify the common steps required to install the pump after the pump has been reassembled.
8. Identify the common steps to prepare the pump for startup and operational check after maintenance or repair has been completed.
MODULE 63305-02 – MAINTAIN, TROUBLESHOOT, AND REPAIR GAS COMPRESSORS

1. Identify the typical lubrication system components of a gas compressor.
2. Describe the preventive maintenance requirements for a gas compressor.
3. Identify the common troubleshooting techniques for a gas compressor.
4. Identify the common steps required to prepare for shutdown and repair of a gas compressor.
5. Identify the common steps required to isolate a gas compressor from a pipeline system.
6. Identify the common steps required to repair a rotary and reciprocating gas compressor.
7. Identify the common steps required to prepare the gas compressor for start-up and operational check after maintenance has been completed.

MODULE 63306-02 – MAINTAIN, TROUBLESHOOT, AND REPAIR PNEUMATIC VALVE ACTUATORS/OPERATORS AND SYSTEMS (CT 19.6 AND 21.1)

1. Perform pneumatic system preventive maintenance procedures.
2. Inspect pneumatic system components.
3. Read pneumatic system schematic diagrams.
4. Troubleshoot pneumatic systems.
5. Repair pneumatic system components.
6. Adjust pneumatic valve actuators/operators (CT 19.6).
7. Repair pneumatic valve actuators/operators (CT 21.1).

MODULE 63307-02 – MAINTAIN, TROUBLESHOOT, AND REPAIR HYDRAULIC VALVE ACTUATORS/OPERATORS AND SYSTEMS (CT 19.7 AND 21.4)

1. Inspect hydraulic system equipment.
2. Read hydraulic system schematic diagrams.
3. Explain the basic hydraulic principles that must be considered before troubleshooting.
4. Troubleshoot hydraulic systems.
5. Repair hydraulic system components.
6. Adjust hydraulic valve actuators/operators (CT 19.7).

MODULE 63308-02 – MAINTAIN, TROUBLESHOOT, AND REPAIR ELECTRIC VALVE ACTUATORS/OPERATORS AND SYSTEMS (CT 19.5 AND 21.5)

1. Perform preventative maintenance procedures on electric actuators/operators.
2. Inspect electric actuator/operator components.
3. Troubleshoot problems with electric actuators/operators.
4. Adjust electric actuator/operator components (CT 19.5).
5. Repair electric actuator/operator components (CT 21.5).

MODULE 63309-02 – MAINTAIN, TROUBLESHOOT, AND REPAIR METERING DEVICES AND PROVERS

1. Inspect and maintain metering devices.
2. Repair metering devices.
3. Inspect and maintain prover systems.
4. Repair prover systems.
5. Calibrate prover systems.