



## **CHEM 6014: Properties and Characteristics of Natural Gases**

### **Learning Outcome**

*When you complete this module you will be able to ....*

Discuss the pertinent properties and uses of natural gases as they occur in gas processing.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Describe the physical properties of natural gases.
2. Describe the chemical reactions and heat related terms as they apply to combustion.
3. Describe the significance of natural gases as used in domestic, commercial, and industrial settings.

## **COMM 6001: Interpersonal Communication I – Perceptions and Barriers**

### **Learning Outcome**

*When you complete this module you will be able to ....*

Demonstrate effective interpersonal communication skills by checking perceptions and overcoming barriers of language.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Describe the process of interpersonal communication.
2. Discuss how different perceptions affect interpersonal communication.
3. Use effective language in interpersonal communication.

## **DFTG 6008: Land Survey Systems**

### **Learning Outcome**

*When you complete this module you will be able to ....*

Describe the survey systems of Western Canada and utilize these systems to positively and quickly locate wellsites, leases, and surface facilities.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Describe the Dominion Land Survey System of land survey and explain the Unique Identifier System for locating specific sites.
2. Explain the principle of land ownership within Canada and specifically Western Canada.
3. Describe the National Topographic System of survey and explain how specific sites are identified.

## **ELEC 6005: Introduction to Static Electricity**

### **Rationale**

*Why is it important for you to learn this material?*



Static electricity historically has not been clearly understood. A good understanding of the hazards and hazard control methods for static electricity is vital to the protection of health, safety, and the environment

## **Learning Outcome**

*When you complete this module you will be able to...*

Discuss static electricity produced by the movement of materials and equipment.

## **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Describe how static electricity is produced.
2. List the hazards of static electricity
3. Describe how static electricity can be controlled when flammable liquids are transported.
4. Describe how to reduce problems with static electricity when solids are moved through piping and ducting.
5. Describe how to reduce static electricity in belts and rollers.
6. List precautions to be taken when steam cleaning vessels or tanks, so that static electricity does not cause an accident, a fire, or an explosion.

# **FMEC 6003: Density and Specific Weight**

## **Learning Outcome**

*When you complete this module you will be able to ....*

Demonstrate a knowledge of densities as applied to solids, liquids, and gases.

## **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Define mass density and compare the densities of common solids, liquids and gases.
2. Solve problems involving mass density.
3. Define relative density and solve problems involving relative density.
4. Discuss specific weight (weight density) and specific gravity.

# **INST 6013: Flow Measurement - Orifice Plate**

## **Installation**

### **Learning Outcome**

*When you complete this module you will be able to ....*

Describe orifice plate installations.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Describe the reasons and requirements for straightening vanes.
2. Describe the types and locations of pressure taps.
3. Describe the procedure to change orifice plates under pressure using a slide valve plate changer.

# **INST 6014: Flow Measurement - Orifice Plates**

## **Learning Outcome**



*When you complete this module you will be able to ....*

Discuss the purpose of orifice plates and describe the most commonly used types.

## **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. State the theory involved in the use of differential pressure flow meters.
2. Describe the types of orifice plates and their applications.
3. Discuss the mechanical requirements which are followed to ensure accuracy when using orifice plates.
4. Calculate the permanent pressure loss caused in a pipe by the orifice plate.

# **INST 6018: Introduction to Process Measurement**

## **Learning Outcome**

*When you complete this module you will be able to:*

Describe the construction and operation of common devices used to measure pressure, level, temperature, flow, and composition.

## **Learning Objectives**

*Here is what you will be able to do when you complete each objective:*

1. Identify common types of pressure, level, temperature, flow and composition measurement devices.
2. Describe the operation and application of these devices.

# **INST 6020: Pressure Measurement Standards**

## **Learning Outcome**

*When you complete this module you will be able to ....*

Describe the principles of operation and the limitations of various pressure measurement standards.

## **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Define a pressure standard.
2. Describe the principle of operation of manometers, mercury barometers, dead weight testers, and comparison gauge testers and perform relative calculations.
3. Describe desirable characteristics of manometer fluids and describe factors that may introduce errors into manometer readings.
4. Describe limitations of manometers.
5. Describe factors that may introduce errors into dead weight tester measurements and calibrations.

# **INST 6141: Temperature Measurement**

## **Learning Outcome**

*When you complete this module, you will be able to ...*

Discuss the principles of operation and the applications of the common temperature measuring devices.

## **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Describe the operation and application of glass-stem thermometers.
2. Describe the operation and application of bimetallic thermometers.



3. Describe the classes, operation and application of filled thermal elements.
4. Describe the operation and application of thermocouples.
5. Describe the operation and application of resistance thermometers.
6. Describe the operation and application of the radiation pyrometer.

## MATH 6001: Areas and Volumes of Solids

### Learning Outcome

*When you complete this module you will be able to:*

Calculate the volumes of rectangular objects, cylinders, and spheres; calculate the surface areas of cylinders and spheres.

### Learning Objectives

*Here is what you will be able to do when you complete each objective:*

1. Convert the commonly used units of volume.
2. Calculate the volume of a rectangular prism.
3. Calculate the surface area and volume of a cylinder.
4. Calculate the surface area and volume of a sphere.

## PHYS 6002: Unit Conversions

### Learning Outcome

*When you complete this module you will be able to ....*

Convert units from SI to English and vice versa, including conversion of equations.

### Learning Objectives

*Here is what you will be able to do when you complete each objective.*

1. Understand and apply the two common systems of units.
2. Differentiate between mass and weight.
3. Apply the conversion factor  $g_c$  as needed.
4. Convert quantities from one unit set to another.
5. Derive an equation with new units from a given equation of different units.

## PIPE 6002: Gaskets

### Learning Outcome

*When you complete this module you will be able to ....*

Discuss the designs and installation of flange gaskets.

### Learning Objectives

*Here is what you will be able to do when you complete each objective.*

1. Explain the purpose of gaskets and describe the proper technique for gasket installation.
2. Describe various flange face designs.
3. Explain some considerations when selecting the correct gasket for a particular application.
4. Describe the different types of gaskets.
5. Describe how to make a gasket and the factors to be considered if a gasket joint fails.



## **PIPE 6003: Introduction to Valves**

### **Learning Outcome**

*When you complete this module you will be able to:*

Discuss the design and uses of the valves most commonly used in industry and on boilers.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective:*

1. Describe several common valve designs.
2. State the applications of the various valve designs.
3. Identify the materials used in valve construction.
4. Describe valve trim, packing, and stem configuration.
5. List the markings required on valves and pipe fittings.
6. Describe the function, operation, and design of a boiler non-return valve.
7. Sketch and describe various arrangements of non-return and header valves.

## **PIPE 6014: Introduction to Piping and Piping Fittings**

### **Learning Outcome**

*When you complete this module you will be able to:*

Discuss the basic types of piping, piping connections, supports, and drainage devices used in industry.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective:*

1. Apply the pipe schedule table to determine actual inside and outside diameters of pipe.
2. Identify the major types of pipe fittings and describe methods of connection.
3. Describe the most common methods of providing for piping expansion and contraction.
4. Discuss the overall protection of steam piping

## **PTDR 6005: Testing, Completion and Production**

### **Methods**

### **Learning Outcome**

*When you complete this module you will be able to ....*

Discuss methods used to test for a potential well site, complete the installation of a new well, and establish initial production of oil from the well.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Name and describe tests used to determine the fluid characteristics and the production potential of the well.
2. Define well completion, describe the major steps to complete a well, and describe the main components of a completed well.
3. Describe natural, artificial lift, and secondary methods of establishing initial production from a well.



## **PTPR 6009: Emulsions**

### **Learning Outcome**

*When you complete this module you will be able to ....*

Describe the theory of emulsions and their formation.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Explain the conditions necessary for the formation of emulsions.
2. Explain the types of emulsions encountered in oilfield operations.
3. Explain emulsifying agents.
4. Explain the stability of emulsions.
5. Explain methods for the prevention of emulsions.

## **SAFE 6002: Communication and Safety**

### **Rationale**

*Why is it important for you to learn this material?*

We communicate in many ways, through all of our senses. We use different methods of communicating depending on circumstances and certainly some methods are more applicable to the workplace than others. Regardless of method, it is important that the message which is to be given is clear, unambiguous and properly understood if the purpose of the communication is to be achieved.

### **Learning Outcome**

*When you complete this module you will be able to ....*

Demonstrate how effective communication contributes to safety in the workplace.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Discuss the role that effective communication plays in a safety program.
2. Describe the factors that promote, and the factors that hinder, effective communication.
3. Determine and apply effective communication strategies to specific situations.

## **SAFE 6003: The Cost and Effects of Workplace Injuries**

### **Learning Outcome**

*When you complete this module you will be able to ....*

Describe the costs and effects of workplace injuries on individual workers and business.

### **Learning Objectives**

*Here is what you will be able to do when you complete each objective.*

1. Discuss the various implications of workplace injuries.
2. List steps that can be taken to reduce workplace injuries.

## **SAFE 6013: Fires and Extinguishing Media**

### **Learning Outcome**



***When you complete this module, you will be able to...***

Describe the fire classifications and the types of extinguishing media suitable for each classification.

## **Learning Objectives**

***Here is what you will be able to do when you complete each objective:***

1. Describe the basic modes of combustion.
2. Describe each class of fire and give examples of common fuel sources.
3. Name the various types of extinguishing media, how they work to extinguish fires, and the proper uses for each type.

## **SAFE 6020: Gas Detection Equipment**

### **Learning Outcome**

***When you complete this module you will be able to ....***

Understand the reasons gas detectors are used, recognize some common types of gas detection equipment, and know how to use and care for them.

### **Learning Objectives**

***Here is what you will be able to do when you complete each objective.***

1. Describe why gas detectors are required.
2. Describe various types of gas detectors.
3. Describe the correct placement and use of gas detection equipment.
4. Describe the principles of gas detection.
5. Describe the routine care, inspection and maintenance for gas detection equipment.

## **SAFE 6044: Introduction to Occupational Hygiene**

### **Learning Outcome**

***When you complete this module, you will be able to...***

Describe the role of occupational hygiene in the workplace.

### **Learning Objectives**

***Here is what you will be able to do when you complete each objective.***

1. Define and describe the purpose and goals of occupational hygiene.
2. List typical health hazards in the workplace.
3. Describe how to minimize health risks in the workplace.
4. Describe how occupational health and safety legislation protects workers.