

## MODULE 099: GAS TRANSFER TYPE VACUUM PUMPS ABSTRACT

Learning Activities	Time in Class	Outside Time
6	8.5 hours	3 hours

### Overview:

In this module, trainees explore system pumpdown and the three types of gas transfer pumps used to achieve vacuum levels. The discussion includes applications, theory of operation, operating range and preventative maintenance requirements. A detailed treatment is given for: rotary (vane, piston, lobe), dry (diaphragm, multi-stage, scroll), and momentum transfer (diffusion, turbo) type pumps. The module provides practice exercises including a computer based simulation of an operation vacuum system.

### Module Contents:

#### Narrative

#### Overview

Learning Activity 01: Study of a Vacuum System

Learning Activity 02: Research Equipment Manufacturers.

Learning Activity 03: Positive Displacement Vacuum Pumps.

Learning Activity 04: Momentum Transfer Vacuum Pumps.

Learning Activity 05: Gas Transfer Pumps Questor Game.

Learning Activity 06: Vacuum Technology Simulation

Slide Show 01: Study of a Vacuum System

Slide Show 02: Positive Displacement Vacuum Pumps

Slide Show 03: Momentum Transfer Vacuum Pumps.

Slide Show 04: Gas Transfer Pumps Questor Game

Performance Assessment 01:

Animation 01: Rotary Vane Pump

Animation 02: Mechanical Booster Pump

Animation 03: Rotary Piston Pump

Animation 04: "The Questor Game"