

**Texas A&M University – Corpus Christi**  
**College of Science and Technology**  
**Engineering Technology**

**Course number and title:** ENTC 1203 Introduction to the Process Industry

**Weekly Schedule:** 1 hour lecture and 3 hours laboratory

**Prerequisite:** None

**Course Description:**

Includes industry terminology; health and safety issues; environmental issues; overviews of plant equipment, basics of process control, and plant organization; plant tours required.

**Textbooks**

The Process Technology Handbook, Charles Thomas, UHAI, 1997.

**Course Objectives**

This course is designed to enable students to:

- Define key terms used in process technology.
- Describe the roles and responsibilities of process technicians and technologists.
- Identify instruments and equipment used in the process industry.
- Describe and apply the basic principles of pressure, fluid flow, temperature, and distillation.
- Describe the operations and applications of valves, pumps, compressors, steam turbines, and heat exchangers.
- Define quality control principles and terms.
- Describe air pollution control, solid waste control, toxic substance control, and community right-to-know principle.
- Define standards and codes found in a safety program.
- Contrast the burning of solids, liquids, and gases.

**Assessment**

	Points		If	Grade
Pop Quizes	10		$90 \leq \text{Total}$	A
Midterm 1	25		$80 \leq \text{Total} < 90$	B
Midterm 2	25		$70 \leq \text{Total} < 80$	C
Tour reports	10		$60 \leq \text{total} < 70$	D
Final	30		$\text{Total} < 60$	F
Total	100			

**Topics covered:**

Process technicians, roles and responsibilities, college training programs, fundamental skills needed by technicians, basic principles of pressure, heat transfer and temperature, fluid flow, purpose of valves, types of valves, relief and safety valves, types of pumps, compressor principles, compressor types, steam turbines, quality control, basic instruments and electronics, measurement of temperature, pressure, level, and flow, heat exchangers, reboilers, condensers, Fired heaters, Furnace types, Cooling towers, Reactor types, Process chemistry, chemical equations and reactions, the periodic table, pH measurements, distillation principles and systems, steam systems, boiler operations and functions, extruder operations, plastics equipment and operations, environmental awareness, air and water pollution control, solid waste and toxic substance control, emergency response, community-right-to-know, process safety programs, safety standards and codes, fire dynamics, chemical explosions, flame propagation, smoke movement.

**Laboratory Exercises/Experiments:**

- Lab 1 DEXTER lesson 1
- Lab 2 DEXTER lesson 9, 14
- Lab 3 DEXTER lesson 2
- Lab 4 DEXTER lesson 3
- Lab 5 DEXTER lesson 4
- Lab 6 DEXTER lesson 5
- Lab 7 DEXTER lesson 6
- Lab 8 DEXTER lesson 7
- Lab 9 DEXTER lesson 8
- Lab 10 DEXTER lesson 10
- Lab 11 DEXTER lesson 11
- Lab 12 DEXTER lesson 12
- Lab 13 DEXTER lesson 13
- Lab 14 DEXTER lesson 15, 16

**Prepared by:** Hesham Shaalan

**Date:** \_\_\_\_\_