

**Course Outline**  
**IMTC 110**  
**PUMPS, PACKINGS, AND MECHANICAL SEALS**  
**4 Semester Hours**

**The Community College of Baltimore County**

**Description**

**Pumps, Packings, and Mechanical Seals**

Examines the different mechanical and physical properties of various types of pumps, packing materials, and mechanical seals; covers how to install, maintain, and repair these pumps as well as the proper procedures for the installation of seals and packing.

Prerequisite: IMTC 101

**Overall Course Objectives**

Upon completion of this course the student will be able to:

- A. identify various types of pumps and describe how they operate.
- B. select a pump type that is correct for a given application.
- C. use proper nomenclature for pump parts.
- D. disassemble/reassemble the pump and perform routine maintenance.
- E. diagnose problems of poor pumping and correct them.
- F. properly pack a pump.
- G. identify various types of soft-packing, their compositions and structures.
- H. select the proper packing for a specific pumping application.
- I. lubricate the packing properly.
- J. diagnose some pumping problems through observations of the packing removed from the pump.
- K. identify various types of mechanical seals.
- L. distinguish between "balanced" and "unbalanced" mechanical seals.
- M. remove/install mechanical seals properly.
- N. identify conditions warranting the use of mechanical seals versus soft packing.
- O. describe how a mechanical seal seals.
- P. identify reasons for mechanical seal failures.
- Q. Use O.H.S.A. safety rules on the preceding tasks.

**Major Topics**

List all major topics in outline form if appropriate

- I. Types of pumps – how they work
- II. Pumping requirements – selection
- III. Pump construction
- IV. Pumping problems (malfunctions)
- V. Types of packing

## VI. Mechanical seals

### **Course Requirements**

Exams            75%

Quizzes         25%

(Subject to revision by the instructor)

### **Other Course Information**