

**Common Course Outline**  
**IMTC 221**  
**BASIC HYDRAULIC/PNEUMATIC SYSTEMS II**  
**4 Semester Hours**

**The Community College of Baltimore County**

**Description**

Basic Hydraulic/Pneumatic Systems II

Provides the necessary background information to troubleshoot and repair hydraulic and pneumatic equipment.

Prerequisite: IMTC 220 or consent of the program director.

**Overall Course Objectives.**

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

- A. define area, force, pressure and flow.
- B. demonstrate the concepts of area, force, pressure and flow with the circuits on the test stand.
- C. state Bernoulli's Law, Torricell's Law and Pascal's Law along with one application of each to hydraulic circuits.
- D. identify pneumatic and hydraulic components used in industrial systems.
- E. describe how each component in a given system functions.
- F. read and draw hydraulic circuits.
- G. set up a given circuit on the test stand.
- H. identify possible causes of a given malfunction in hydraulic systems.
- I. list troubleshooting techniques in hydraulic systems.
- J. troubleshoot a circuit and identify the cause of the malfunction.
- K. compare in contrast pneumatics and hydraulic systems
- L. charge and bleed accumulators.
- M. demonstrate an application of an air/oil circuit.
- N. demonstrate safe use of the test stands.
- O. Use O.H.S.A. safety rules for all the above tasks.

**Major Topics**

- I. Air, Fluids, Filters
- II. Reservoirs, Seals – Relief Valves
- III. Motors, Open – Close Loops
- IV. Directional Valves
- V. Flow Controls
- VI. Mobile Circuit & Cylinders
- VII. Accumulators, Demonstration of Acc., Charging and Hoist, Pressure Fittings
- VIII. Seq. Counterbalance & brake valves, reducing valve & Pilot Oper. Checks
- IX. Circuits, Color Circuits
- X. All Circuits, Test Stands

## **Course Requirements**

Exams 75%

Quizzes 25%

(Subject to revision by the instructor)

## **Other Course Information**