

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
MEC 161 - BASIC FLUID MECHANICS - HYDRAULICS/PNEUMATICS (4 CR.)**

Course Description

Introduces theory, operation and maintenance of hydraulic/ pneumatics devices and systems. Emphasizes the properties of fluids, fluid flow, fluid statics, and the application of Bernoulli's equation. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

To provide students with a basic understanding of mobile hydraulic/pneumatic systems and their design.

Course Prerequisites/Co-requisites

Ability to read, write, and speak the English language.

Course Objectives

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

- Explain fundamental hydraulic principles
- Apply the laws of hydraulics and pneumatics
- Calculate force, pressure and area
- Interpret Hydraulic and Pneumatic schematics
- Outline the properties of fluids
- Describe the functions of pumps, motors, valves, and actuators

Major Topics to be Included

- Pascal's Law and its effect on hydraulic/pneumatic systems
- Read and layout various hydraulic/pneumatic schematics
- Various types of hydraulic/pneumatic pumps and motors used in mobile systems
- Various types of valves used in hydraulic/pneumatic systems