

## Common Course Numbering System

Your current Institution is CCCS

### Searching Current Courses For Spring 2015

Course: IMA 160

Title: Basic Fluid Power

Long Title: Basic Fluid Power

Course Description: Provide an understanding of the fundamentals of fluid power, hydraulic transmission of force and energy, operation at the suction side of the pump, petroleum based hydraulic fluids, fire resistant hydraulic fluids, flow rates and velocity, properties of hydraulic fluids, and the function and construction of basic elements of a hydraulic or fluid power system. The course will cover hydraulic symbols and prints used in industry.

Min Credit: 3

Max Credit:

Course Notes: Entered new course 7/3/07 s@

Origin Notes: RRCC

### STANDARD COMPETENCIES:

- I. Understand the principles of force, energy, work, pressure and torque.
- II. Understand the units of energy, particularly horsepower.
- III. Describe the function and purpose of a hydraulic system.
- IV. Identify open-center and closed-center hydraulic systems.
- V. Understand mechanical force transmission.
- VI. Interpret hydraulic pictorial drawings and symbols drawings.
- VII. Describe the sources of inefficiency in a hydraulic power system.
- VIII. Describe the different fluids used in hydraulic power systems and their proper application.
- IX. Describe the different pumps used in hydraulic power systems.
- X. Describe the valves used in hydraulic power systems and understand their function.
- XI. Describe the function of accumulators in hydraulic power systems.
- XII. Describe and demonstrate basic hydraulic system maintenance procedures.
- XIII. Describe the seven basic troubleshooting steps.
- XIV. Demonstrate troubleshooting and problem resolution techniques as applied to hydraulic power systems.

### TOPICAL OUTLINE:

- I. Fundamentals of fluid power
  - A. Fundamental hydraulic circuit
  - B. Basic physical laws
  - C. Pressure and force
- II. Hydraulic transmission of force and energy
  - A. Flow rate and velocity
  - B. Work power and horsepower
  - C. Properties of hydraulic fluids
- III. Symbols used in fluid power diagrams
  - A. Reading hydraulic symbol drawings
  - B. Characteristics of symbols
  - C. Hydraulic components and symbols
- IV. Hydraulic system components
  - A. Pumps
  - B. Cylinders
  - C. Hoses, piping and connections
  - D. Valves
  - E. Accumulators
- V. General maintenance
  - A. Cleanliness
  - B. Cleaning and flushing Systems
  - C. Preventing overheating
  - D. Preventing air-in-oil problems
  - E. Checking system before operation
  - F. Safety rules
- VI. Diagnosis and testing of hydraulic systems
  - A. Seven basic steps
  - B. Testing the machine
  - C. Troubleshooting

RELEASE: 8.5.3

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