MOHAWK VALLEY COMMUNITY COLLEGE

UTICA AND ROME, NEW YORK

COURSE OUTLINE

PNEUMATIC AND HYDRAULIC SYSTEMS

MT149

Reviewed and Revised– 4/19/2017

CATALOG DESCRIPTION

MT149 Pneumatic and Hydraulic Systems C-2, P-2, Cr-3

This course presents a study of fluid power technology using fluids or compressed air as the transfer media. Complete hydraulic and pneumatic systems, including power sources, reservoirs, pumps, compressors, lines, valves, and actuators. Additional topics include troubleshooting strategies used to identify, localize and correct malfunctions in pneumatic and hydraulic systems, preventative maintenance, and safety issues.

1. MATERIALS:

Calculator: A basic calculator

Safety Goggles

1. STUDENT LEARNING OUTCOMES

The student will be able to,

* 1. … demonstrate knowledge of the need for PPE(personal protective equipment) and safety dress.
  2. … demonstrate safe operating procedure in class and in lab.
  3. … interpret fluid power symbols on a fluid power circuit drawing.
  4. … explain the behavior, and design simple hydraulic/pneumatic control circuits in the context of standard engineering applications.
  5. … describe and understand the purpose of various hardware within hydraulic/pneumatic control circuits, such as: relief valves, safety valves, pressure regulators, pressure switches, etc.
  6. … learn to analyze, diagram, and create simple hydraulic and pneumatic circuits.
  7. … troubleshoot basic problems within hydraulic/pneumatic systems.

1. MAJOR TOPICS

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| **Week** | **Reading** | **Lecture Topic** |
| 1 | 5 | Safety, PPE, Pneumatic/Hydraulic System Trainer Operation |
| 2 | 3 | Basic Principles of Air and Fluids |
| 3 | 4 | Fluid Power Standards and Symbols |
| 4 | 2 | Components, Structures, and Operation of Fluid Power Systems |
| 5 | 6 | Hydraulic Fluid Systems |
| 6 | 7 | Hydraulic Pumps |
| 7 |  | **Midterm** |
| 8 | 8 | Fluid Storage and Distribution |
| 9 | 9, 10 | Actuators, Motors, Controls, and Valves |
| 10 | 11 | Accumulators |
| 11 | 13 | Typical Hydraulic Systems |
| 12 | 14, 15 | Air Compressors |
| 13 | 17, 18 | Pneumatic Actuators, Motors, Controls, and Valves |
| 14 | 19 | Typical Pneumatic Systems |
| 15 | 12, 16 | Troubleshooting Hydraulic and Pneumatic Systems |
| 16 |  | **Final Exam** |

COURSE NAME: MT114

*DATE FACULTY NAME CHANGE INPUT MEASUREMENT ASSESSMENT ACTION*

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| **04/19/17** | **N. Roscup** | **Developed Course Outline** |  |  |  |  |
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