SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Manufacturing Engineering Technology Program
Revision Date: August 23, 2021
Syllabus Statements

I. CATALOG DESCRIPTION

Course Number:	MFGT1333
Course Title:	Fluid Power for Manufacturing
Prerequisite(s):	MATH1050 or higher, MFGT1150, MFGT1413
Catalog Description:	Theory and operation of automation components, and automation design. Electro-mechanical items such as relays, solenoids, and actuators and many of the fluid power and mechanical devices that are common to automated equipment will be explored. Schematics for fluid power systems will be studied and how to design, build, and control an automated device.
Credit Hours:	2
Class Hours:	15
Lab Hours:	45
Total Contact Hours:	60

II. COURSE OBJECTIVES: *Course will:*

A. Introduce techniques needed to design, build and operate circuitry for hydraulic and pneumatic systems and their proper applications.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*
- **1.** Apply a fluid power or other electromechanical device to an application.
- **2.** Verify and troubleshoot a simple fluid power device from a schematic.
- **3.** Design and build a simple automated device, using fluid power devices such as cylinders, valves and switches.
- **4.** Explain industrial – related hydraulic and pneumatic systems.
- **5.** Understand the function of each component in the various systems.
- **6.** Use, read and understand ANSI symbols representing the various components in a system.

B. General Education Learning Outcomes (GELOs)
- **1.** GELO #5: Analytical, Quantitative, and Scientific Reasoning
  Outcome 1: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information)*

A. Fluid power principles
B. Cylinders and their ANSI symbols
C. Directional control valves and their ANSI symbols
D. Pressure control valves and their ANSI symbols
E. Flow control valves and their ANSI symbols
F. Hydraulic pumps and motors and their ANSI symbols
G. Accessory items and their ANSI symbols
H. Circuit and schematic drawing projects
I. Electro-hydraulic servo and proportional valves

V. INSTRUCTIONAL MATERIALS

A. Required Text(s):
- **1.** Industrial Fluid Power Text, Volume I, Womack Educational
- **2.** Publications (current edition – see instructor)
- **3.** Fluid Power Data Book, Womack Educational Publications (current edition – see instructor)

B. Other Resources:
- **1.** Supplemental handouts from instructor
- **2.** Cut away and non-cut away components

C. Supplies:
- **1.** Calculator
- **2.** Notebook (8.5 x 11)

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:
- **1.** Lecture
- **2.** Small and large group discussion
- **3.** Video presentation
- **4.** Transparencies
- **5.** Demonstrations
- **6.** Handouts
- **7.** Observations
- **8.** Assigned lab projects
- **9.** Field trips

VII. METHODS OF EVALUATION (*course outline will provide more detailed information)*

A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
- **1.** Notebook (if required)
- **2.** Quizzes
- **3.** Tests
- **4.** Lab grades

VIII. SPECIFIC COURSE REQUIREMENTS:

A. Completion of all tests, projects, assignments, and notebook (if required).

B. Must earn a final grade of 60% (1.0) or higher.

C. Program shop safety rules will be followed. **Please see the course outline for any additional safety rules established by the instructor.**