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**COURSE SYLLABUS**

**DIVISION:** Workforce Services

**Revised: January 2015**

**CURRICULUM IN WHICH COURSE IS TAUGHT:** Technical Studies, Integrated Systems Technology

**COURSE NUMBER AND TITLE:** MEC 269-Applications in Pneumatics Troubleshooting

**CREDIT HOURS:** 2

**HOURS WEEK LECTURER:** 1

**HOURS WEEK LAB:** 2

**LECTURE/LAB COMBINATION:** 3

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The OEE classes are self-paced study classes in which a student has 16 weeks to complete once enrolled. Students will complete all lab and bookwork before doing the end of chapter tests. All end of chapter tests and final exams are closed book.

**i. CATALOG DESCRIPTION**

Teaches pneumatic components, systems and trouble analysis. Introduces basic design for modification and repair. Covers open loop control, fluidics, robotics and computer controls.

**II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES IN WHICH IT IS TAUGHT.**

This course offers the basic fundamentals of pneumatic components and is necessary for today industrial maintenance technicians.

**III. REQUIRED BACKGROUND**

This course is intended for those individuals with no prior pneumatic components systems.

**IV. COURSE CONTENT:**

- **Introduction to Pneumatic Troubleshooting**
- Pneumatic Troubleshooting Concepts
- Safety
- In-circuit Pneumatic Testing
- **Air Preparation Troubleshooting**
- Filter Troubleshooting
- Lubricator Troubleshooting
- Regulator Troubleshooting
- **Troubleshooting Pneumatic Cylinders**
- Pneumatic Cylinder Troubleshooting

- Rodless Cylinder Troubleshooting
- Air-Over-Oil System Operation
- Air-Over-Oil System Troubleshooting
- **Motor and Rotary Actuator Troubleshooting**
- Motor Troubleshooting
- Rotary Actuator Operation
- Rotary Actuator Troubleshooting
- **Troubleshooting DCV and Flow Control Valves**
- Directional Control Valve Troubleshooting
- Flow Control Valve Troubleshooting
- Quick Exhaust Valves
- Exhaust Restrictors
- **Troubleshooting Vacuum Systems**
- Troubleshooting Vacuum cups and Generators
- Vacuum Switch Operation
- Vacuum Switch Troubleshooting
- **Troubleshooting Pneumatic Systems**
- Troubleshooting Systems
- Troubleshooting Level Faults
- Troubleshooting Machine Sequence Faults
- Troubleshooting Machine Performance Faults

#### V. LEARNER OUTCOMES

#### VI. EVALUATION

<p>Demonstrate and identify good safety procedures when working with industrial hydraulic systems.</p> <p>Assemble hydraulic circuits and verify their operation in a lab setting.</p> <p>Determine why certain components are required in specific circuits.</p> <p>Adjust and calibrate system components in a predetermined sequence.</p> <p>Understand sources of heat in a hydraulic system.</p> <p>Understand the different types of flow controls and applications of each.</p> <p>Understand how to control a suspend load.</p> <p>Understand the purpose of accumulators and how to properly charge them.</p>	<p>Module Quiz</p> <p>Hands-on Lab</p> <p>Assignments</p>
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Identify the symptoms, causes, and prevention of shock in a hydraulic circuit.	Final Exam Final Hands-on Lab
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**The course supports the following objectives:**

DCC Educational Objectives

1. Communication
2. Critical Thinking
3. Understanding Culture and Society
4. Information Literacy