Print Date: 3/19/18

Course Objectives/Course Outline
Spokane Community College

Course Title: **Fluid Power Systems**
Prefix and Course Number: **IMMA 221**

Course Learning Outcomes:
By the end of this course, a student should:

- Define fluid power systems, including hydraulics and pneumatics
- Describe and interpret fluid power system terminology, drawings, and diagrams
- Explain the physical principles and theories related to hydraulic and pneumatic systems
- Describe the components of a hydraulic system and their functions, including pipes, valves, fluids, pumps, cylinders, and motors
- Describe the components of a pneumatic system and their functions, including pipes, valves, compressors, pumps, blowers, and motors
- Apply proper inspection techniques to components of fluid power systems
- Apply proper maintenance techniques to components of fluid power systems: set-up, installation, removal, and replacement
- Demonstrate proper safety techniques when handling shop materials and operating equipment
- Demonstrate professionalism, critical thinking, and teamwork during in-class discussions, presentations, and hands-on activities

Course Outline:

A. *NOTE:* This course schedule is subject to change at the discretion of the instructor.

Week 1: Fluid Power Systems Fundamentals Introduction to Fluid Power The Basic Fluid Power System Safety and Health Lab: Fluid Power Systems Demo	**Week 7: Hydraulic Pressure, Direction, and Flow** Control Valves and Devices Accumulators
Week 2: Physics, Standards, and Symbols Physical Principles Standards and Symbols	**Week 8: Hydraulic Filtration and Temperature Control** Filtration and Temperature Control Hydraulic Power Applications
Week 3: Hydraulic Power Units and Pumps Power Units and Pumps	**Week 9: Pneumatic Compressed Air and Compressors** Compressed Air Compressors
Week 4: Hydraulic Fluid Storage and Distribution Hydraulic Fluid Reservoirs, Conductors, Connectors	**Week 10: Pneumatic Air Distribution and Actuators** Air Distribution and Conditioning Actuators: Cylinders, Motors, Other Devices
Week 5: Hydraulic Actuators Hydraulic Fluid Types and Functions Hydraulic Fluid Handling and Maintenance	**Week 11: Pneumatic Circuits and Systems** Controlling Pneumatic Systems Pneumatic Power Applications
Week 6: Midterm Exam Midterm Exam covers skills learned in Weeks 1 thru 5	**Week 12: Final Exam** Final Exam covers skills learned in Weeks 1 thru 11

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