IND208 Fluid Power II Syllabus

Course Information

Credits 3
Campus Washburn Institute of Technology (Forbes Facility)
Address 6530 SE Forbes Avenue
City/State/Zip Topeka, Kansas 66619
Office Fax 785-670-2734

Description
This course focuses on understanding of hydrodynamics, hydraulic principles, hydraulic circuitry and diagrams, piping, hydraulic valves and actuators, accumulators, hydraulic circuit maintenance and fluid maintenance. Students learn to operate, install, analyze performance, and design hydraulic and electrohydraulic systems.
Prerequisite: IND152 or consent of instructor.

Textbooks
ISBN: 978-0-826-93705-6

Student Learning Outcomes:
A. Communicate effectively
B. Integrate technology
C. Learn effectively
D. Demonstrate cooperative teamwork skills
E. Apply safety in the workplace
F. Think critically and creatively
G. Demonstrate responsible work ethics

Competencies
1. Identify the basic types of hydraulic diagrams and essential elements of a hydraulic circuit.
2. Define hydraulics, hydrostatics and hydrodynamics.
3. Define head pressure, lift, and total column; and explain static and dynamic forms of each.
4. Explain factors affecting flow.
5. Explain mechanical advantage, and demonstrate its application in a hydraulic system.
6. Identify the function and types of hydraulic piping and hydraulic pumps.
7. Identify the function and types of hydraulic valves like pressure control, directional control and flow control valves.
8. Design a dual cylinder hydraulic circuit.
9. Draw a hydraulic circuit from actual circuit connections and from a given schematic.
11. Identify the function and types of hydraulic actuators and accumulators.
12. Design a multiple actuator hydraulic circuit.
13. Calculate extend speed, retract speed and stroke of a cylinder given its size and flow rate.
14. List the function and means of shifting a directional control valve.
15. Design an independent speed control circuit.
16. Design hydraulic circuit using DCV.
17. Explain hydraulic relief valve and check valve applications.

Guidelines for Success

Assessment Plan
Assessment is an integral part of the educational process at Washburn Tech and accurate feedback is an important tool in continuously improving the institution’s technical programs. Students can expect to participate in assessment activities prior to entry into programs, within specific courses and following program completion for specific fields of study.

Grading Rationale
Class sessions and assignments will include daily homework, in-class review of homework, quizzes. Grades will be based on: Attendance and general participation, daily homework, quizzes and tests and final exam.

Grading Scale
90% or higher         A
80% to 89%             B
70% to 79%             C
60% to 69%             D
Less than 60%          F

Attendance
Tardies and absences will affect the daily grade for attendance. Students who miss class should inform the instructor beforehand whenever possible, and are responsible for course content, for turning in any required homework, and for taking the initiative to make up any missed tests, labs or quizzes.
**Disability**

The Special Support Services (SSS) Office is responsible for assisting in arranging accommodations and for identifying resources at Washburn Institute of Technology for persons with disabilities. Qualified students with disabilities MUST register and provide documentation with the office to be eligible for services. New requests for accommodations should be submitted two months or more prior to the date services should begin; however, contact the SSS Office as soon as a need may arise. Depending on the accommodation request, four to eight week lead time may be needed for timely and effective provision of services. SSS coordinates and assist in arranging services it deems appropriate of eligible students on a case-by-case basis.

If you are a student with a disability that may substantially limit your ability to participate in this class and believe you will need accommodations, it is your responsibility to contact:

Special Support Services Coordinator  
Phone: 785-228-6356  
E-Mail: ssscoordinator@washburn.edu