IND108 Mechanical Systems I

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 provides understanding of mechanical energy transmission concepts along with lab experience to operate, install, analyze performance, and design basic mechanical transmission systems using chains, v-belts and spur gears. Students also learn how to safely move loads of different shapes and sizes using a variety of methods.

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 shaft size using precision measuring instruments
2. Demonstrate shaft alignment using a flexible jaw coupling and a straight edge and feeler gage
3. Select, measure, cut, and install a key fastener to locate a hub on a shaft
4. Demonstrate shaft alignment skills necessary to install chain, grid, and gear couplings using the straight edge and feeler gage method.
5. Demonstrate selection, maintenance, and troubleshooting of a variety of couplings.
6. Calculate sprocket ratio, shaft speed, and torque of a chain drive system
7. Demonstrate installation and alignment of a chain drive system to include the use of master link connectors. Determine allowable chain sag and adjust chain tension.
8. Calculate pulley ratio, shaft speed, and torque of a v-belt drive system.
9. Demonstrate installation and alignment of a v-belt drive system. Calculate allowable belt deflection and adjust tension.
10. Demonstrate installation and alignment of spur gear drive system. Determine and adjust backlash in gear drive system.
11. Identify, specify, and select v-belts and their drive components. Demonstrate maintenance and troubleshooting skills for v-belt drives.
12. Explain the purpose and application of different types of lubrication.

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
Policy on absences: 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