

Mechanical Systems

Developed Date: 01/27/2014

Credit Hours: 3

Description:

This course provides instruction in basic physics concepts applicable to mechanics of industrial production equipment, teaches basic industrial application of mechanical principles with emphasis on power transmission and specific mechanical components. Students will also design basic mechanical transmission systems using chains, v-belts, and gears.

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, 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.

Note: Institutions may add additional competencies based on local demand.