Course Information Form (CIF)

Course Code: MFX 172

Course Title: Mechanical Drives III

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 47.0303
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 0.5-1-1
Credit Hour Distribution:

Lecture: 0.5	Lab: 1	Clinical: 0	**Total: 1**

General Course Information

Catalog Description

Construction, operation, installation, and alignment of heavy-duty V-belt drives, synchronous belt drives, and heavy-duty chain drives.

General Course Objectives

Bring awareness to new material when working as a maintenance person.

Minimum Placement Levels

English	Reading	Math
Placement into ENG 098	Placement into CCS 098	Placement into MAT 059

Prerequisites

Credit in MFX 171

Methods of Evaluation

5 quizzes.

Instructional Materials and Additional Supplies

Amatrol Course Code

Course Content

General Learning Outcomes (GLOs)

- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.
- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Conventional V-Belt Drives	1. Describe the function of a bushing and list three types. 2. Describe the construction and operation of a QD bushing and give an advantage. 3. Describe the construction and operation of a conventional V-belt drive. 4. Install and align a conventional V-belt drive system with a QD bushing.	0.5	1	0
Multiple V-Belt Drives	1. Describe the construction and operation of a multiple belt V-belt drive. 2. Make sense of the construction and operation of a split taper bushing and give an advantage. 3. Design, install, and align a multiple belt V-belt drive system with a split taper bushing.	1	2	0
Wedge V-Belt Drives	1. Describe the construction and operation of a wedge V-belt drive. 2. Make sense of the construction and operation of a taper lock bushing and give an advantage. 3. Design, install, and align a wedge V-belt drive system with a taper lock bushing. 4. Make sense of the construction and operation of a notched V-belt and give an advantage. 5. Design, install, and align a notched V-belt drive system with a QD bushing.	0.5	1	0
Variable Speed V-Belt Drives	1. Describe the operation of a variable speed V-belt drive system and give an application. 2. Generalize how to install and align a variable speed V-belt drive system. 3. Design, install, and align a variable speed V-belt drive system.	0.5	1	0
V-Belt Configurations	1. Describe four V-belt configurations and give an application of each. 2. Make sense of the function of a belt idler pulley and give an application. 3. Give examples of the operations of three types of belt idler pulley configurations. 4. Design, install, and adjust a backside V-belt idler. 5. Design, install, and adjust a kiss V-belt idler.	0.5	1	0
V-Belt Size Specification	1. Describe how V-belts are specified. 2. Make sense of the three methods of identifying belt size and type. 3. Explain the function and operation of V-belt match codes. 4. Interpret a belt code to determine the size and type of a V-belt. 5. Show the use of a belt gauge to determine belt cross section size. 6. Show the use of measurement to determine belt size and type.	0.5	1	0
V-Belt Component Identification	1. Describe how bushings are specified. 2. Give examples of how sheaves are specified. 3. Show the use of a sheave gauge to identify a sheave size. 4. Design and identify the size and type of a sheave and bushing given a sample.	0.5	1	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
V-Belt Drive Selection	1. Describe preventive maintenance and explain its importance. 2. Explain the preventive maintenance steps for V-belt drives. 3. Point out how to troubleshoot a V-belt drive system. 4. Perform troubleshooting of a V-belt drive system.	0.5	1	0
Timing Belt Drives	1. Describe the construction and operation of a timing belt drive system. 2. Generalize how to install and align a timing belt drive system. 3. Design, install, and align a timing belt drive system.	0.5	1	0
High Torque Drivebelt Drives	1. Describe the operation of an HTD belt drive system. 2. Explain how to install and align an HTD belt drive system. 3. Design, install, and align an HTD belt drive system.	0.5	1	0
Synchronous Belt Drive Selection	1. Describe how timing belts and pulleys are specified. 2. Explain how HTD belts and sprockets are specified. 3. Make sense of how to identify the size and type of synchronous belt and pulley/sprocket given a sample. 4. Assess how to select an HTD belt and sprockets for a given application. 5. Perform selection of an HTD belt and sprockets for a given application. 6. Perform selection of a timing belt and pulleys for a given application. 7. Design a timing belt and pulleys for a given application.	1	2	0
Synchronous Belt Maintenance and Troubleshooting	1. Describe seven maintenance steps for synchronous belt drives. 2. Correlate troubleshooting of a synchronous drive system. 3. Prove how to troubleshoot a synchronous belt drive system.	1	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
7.5	15	0