Course Information Form (CIF)

Course Code: MFX 173

Course Title: Mechanical Drives IV

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

Lubricant management, flange couplings, grid and gear couplings, and chain selection.

General Course Objectives

The student will become familiar with lubricant management, flange couplings, grid and gear couplings, and chain selection.

Minimum Placement Levels

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

Prerequisites

Credit in MFX 172

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
Lubrication Concepts	1. Describe the six functions of a lubricant. 2. Generalize four types of lubricants and give an application of each. 3. Explain the functions of nine types of lubricant additives. 4. Compare the operation of five types of lubrication application methods and give an example.	0.25	1	0
Oils	1. Describe three types of oils and give an application of each. 2. Interpret viscosity and give its units of measure. 3. Make sense of the operation of a viscometer and give an application. 4. Demonstrate the use of a viscometer to measure oil viscosity. 5. Make sense of how oils are specified. 6. Evaluate an oil specification for a given application.	0.5	1	0
Greases	1. Describe four types of grease and give an application of each. 2. Generalize how greases are specified. 3. Evaluate a grease specification for a given application. 4. Give examples of the function and operation of a grease gun. 5. Explain how to use a grease gun to lubricate a pillow block bearing. 6. Demonstrate how to use a grease gun to lubricate a pillow block bearing.	0.5	1	0
Lubricant Management	1. Describe five lubricant storage rules. 2. Make sense of the function of a safety data sheet (SDS). 3. Interpret a safety data sheet. 4. Express the purpose of recycling lubricants. 5. Deduce the four methods used to recycle lubricants. 6. Reinforce how to dispose of spent lubricants.	0.5	1	0
Elastomeric Couplings	1. Describe four types of coupling flexibility. 2. Make sense of the two categories of flexible couplings and give an application of each. 3. List three types of elastomeric couplings and give an application of each. 4. Discriminate the operation of an elastomer-in-shear coupling. 5. Design, install, and align an elastomer-in-shear coupling.	0.5	1	0
Flange Couplings	1. Describe the operation of a flange coupling and give an application. 2. Design, install, and align a flange coupling.	0.25	0.5	0
Rim and Face Shaft Alignment Method	1. Describe the operation of the rim and face alignment method. 2. Design and align a coupling using the rim and face indicator method.	0.5	0.5	0
Reverse Indicator Alignment Method	1. Describe the operation of the reverse indicator method. 2. Design and align a coupling using the reverse indicator method. 3. Make sense of the effect of indicator sag on alignment and explain how to correct for it. 4. Discriminate and correct for indicator sag. 5. Evaluate the effect of thermal expansion on alignment and explain how to correct for it.	0.5	1	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Chain Couplings	1. Explain the five types of flexible metal couplings and give an advantage of each. 2. Explain the operation of a chain coupling. 3. Design, install, and align a chain coupling.	0.5	1	0
Grid and Gear Couplings	1. Describe the operation of a grid coupling. 2. Install and align a grid coupling. 3. Describe the operation of a gear coupling. 4. Install and align a gear coupling.	0.5	1	0
Coupling Selection	1. Describe how couplings are specified. 2. Identify the size and type of a coupling given a sample. 3. Describe how to select a coupling for an application. 4. Select a coupling for a given application.	0.5	1	0
Coupling Maintenance and Troubleshooting	1. Describe three preventive maintenance steps for couplings. 2. Describe how to troubleshoot a coupling system. 3. Troubleshoot a coupling system.	0.25	0.5	0
Silent Chain Drives	1. Describe the operation of four types of sprockets and give an application of each. 2. Describe the operation of a silent chain drive. 3. Describe how to install and align a silent chain drive system. 4. Install and align a silent chain drive system.	0.25	0.5	0
Multiple-Strand Systems	1. Describe the operation of a multiple-strand chain drive system. 2. Describe how to install and align a multiple-strand chain drive system. 3. Install and align a multiple-strand chain drive system using a taper lock bushing.	0.5	1	0
Chain Selection	1. Define chain pitch and pitch length of a chain drive and explain their importance. 2. Describe how chains are specified. 3. Describe how sprockets are specified. 4. Identify the size and type of a chain and sprocket given a specification. 5. Describe how to identify the size and type of chain and sprocket given a sample. 6. Identify the size and type of chain and sprocket given a sample. 7. Describe how to select the type and size of chain and sprocket for a given application. 8. Select a chain and sprocket for a given application.	0.5	1	0
Chain Lubrication	1. Describe four types of chain lubrication methods. 2. Describe how to select a lubrication system for a chain drive system. 3. Select a lubrication system for a chain drive system. 4. Describe how to select a type of lubricant for a chain drive system. 5. Lubricate a chain drive system using the manual lubrication method.	0.5	1	0
Chain Maintenance and Troubleshooting	1. Describe ten maintenance steps for chain drives. 2. Describe how to troubleshoot a chain drive system. 3. Check a chain for elongation. 4. Troubleshoot a chain drive system. 5. Describe the operation of a chain breaker. 6. Cut a chain using a chain breaker.	0.5	1	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
7.5	15	0