PARKLAND COLLEGE

Course Information Form (CIF)

Course Code: MFX 175

Course Title: Mechanical Drives VI

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

Anti-friction bearing selection and maintenance; gaskets, seals, and advanced gear drives; and gear drive selection and maintenance.

General Course Objectives

Students receive a solid understanding of anti-friction bearing selection and maintenance, gaskets, seals, advanced gear drives, and gear drive selection and maintenance.

Minimum Placement Levels

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

Prerequisites

Credit in MFX 174

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
Antifriction Bearing Selection	1. Describe key terms used to select bearings for a given application. 2. Describe how to select a ball bearing for a given application. 3. Select a ball bearing for a given application. 4. Describe how to select a tapered roller bearing for a given application. 5. Select a tapered roller bearing for a given application.	0.5	1	0
Antifriction Bearing Maintenance/Troubleshooting	1. Describe eight maintenance steps for antifriction bearings. 2. Describe how to inspect and troubleshoot an antifriction bearing system. 3. Troubleshoot an antifriction bearing installation.	0.5	1	0
Gaskets	1. Describe the function of a gasket and give an application. 2. Describe five common types of gasket materials and give an application of each. 3. Describe the function of a sealant and give an application. 4. Describe three types of sealants and give an application of each. 5. Describe how to apply a sealant. 6. Describe how to cut a gasket to a specific shape. 7. Cut a gasket to a specific shape. 8. Describe how to install a gasket. 9. Assemble two parts with a gasket.	0.5	1	0
O-Ring Seals	1. Describe the function of an O-ring seal and give an application. 2. Describe the construction and operation of an O-ring seal. 3. Describe how to install, remove, and inspect an O-ring seal. 4. Install, remove, and inspect an O-ring seal.	0.5	1	0
Lip Seals	1. Describe the function of a lip seal. 2. Describe the construction and operation of four types of lip seals and give an application of each. 3. Describe how to install, remove, and inspect a lip seal. 4. Install a lip seal.	0.5	1	0
Mechanical Seals	1. Describe the function of a mechanical seal. 2. Describe the construction and operation of three types of mechanical seals and give an application of each. 3. Describe how to install a mechanical seal. 4. Install, remove, and inspect a mechanical seal system. 5. Describe how to maintain a mechanical seal. 6. Describe the function of a labyrinth seal and give an application.	0.5	1	0
Seal Maintenance and Selection	1. Describe five maintenance steps for seals. 2. Describe how to troubleshoot seal failures. 3. Troubleshoot a given seal installation. 4. Describe how to select a seal for a given application. 5. Select a seal for a given application.	0.5	1	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Helical Gear Drives	1. Describe the operation of two types of helical gears and give an application. 2. Describe two helical gear drive orientations and give an application of each. 3. Describe how to install and align a parallel-axis helical gear drive system. 4. Install and align a parallel-shaft helical gear drive system.	0.5	1	0
Right Angle Gear Drives	1. Describe the function of a right-angle gear drive system. 2. Describe the operation of two types of right-angle gear drive systems. 3. Describe the operation and application of three types of intersecting axis right-angle gear drives. 4. Describe how to install and align a right-angle bevel gear drive system. 5. Install and align a right-angle bevel gear drive system. 6. Describe the operation of three types of non-intersecting axis right-angle gear drives.	0.5	1	0
Speed Reducers	1. Describe the function of a speed reducer and list two types. 2. Describe the construction and operation of a worm gear speed reducer. 3. Describe how to calculate the output speed and torque of a worm gear speed reducer. 4. Calculate the output speed and torque of a worm gear speed reducer.	0.5	1	0
Speed Reducer Maintenance	1. Describe four preventive maintenance steps for speed reducers. 2. Describe how to disassemble and inspect a worm gear speed reducer. 3. Disassemble and inspect a worm gear speed reducer. 4. Re-assemble and align a worm gear speed reducer.	0.5	1	0
Gear Drive Selection	1. Describe how to calculate diametral pitch. 2. Calculate diametral pitch. 3. Describe how gears are specified. 4. Describe how to identify the size and type of gear given a sample. 5. Identify the size and type of gear given a sample. 6. Describe how to select a gear for a given application. 7. Select a gear pair for a given application.	0.5	1	0
Gear Lubrication	1. Describe four types of gear lubrication methods and give an application of each. 2. Describe how to select a method of gear lubrication for a given application. 3. Select a method of gear lubrication for a given application. 4. Describe how to select a lubricant for a given gear drive application. 5. Select a lubricant for a given gear drive application.	0.5	1	0
Gear Drive Maintenance and Troubleshooting	1. Describe five maintenance steps for gear drives. 2. Describe how to inspect and troubleshoot a gear drive system. 3. Troubleshoot a gear drive system.	1	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
7.5	15	0