

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Electrical/Electromechanical Technology Program
Revision Date: August 21, 2023

I. CATALOG DESCRIPTION

Course Number: ELEC1436
Course Title: Power Transmissions and Lubricants
Prerequisite(s): ELEC1474
Catalog Description: Fundamentals of power transmission equipment including belt drives, chain drives, couplings, bearings, seals, and lubrication.
Credit Hours: 2
Class Hours: 15
Lab Hours: 45
Total Contact Hours: 60

II. COURSE OBJECTIVES: *Course will:*

- A. Introduce belt and chain drives.
- B. Introduce bearings, grease seals and oil seals.
- C. Introduce lubrication.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Identify the different types of belts and chains.
 - 2. Design a belt drive system.
 - 3. Identify the different types of bearings.
 - 4. Identify the different types of grease and oil seals.
 - 5. Know the differences between grease and oil.
 - 6. Describe the various applications for grease and oil.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #3: Critical Thinking & Problem Solving
Outcome 1: Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE

- A. Belt Drives
 - 1. Goal Statement: Select, properly install and maintain various types of belt drives. Diagnose V-belt failures.
 - a. Technical information
 - b. Selection
 - c. Types of
 - d. Installation
 - e. Maintenance
 - f. Related Items
- B. Chain Drives
 - 1. Goal Statement: Select, properly install and maintain various types of PT chain drives.
 - a. Technical information
 - b. Selection
 - c. Types of
 - d. Installation

- e. Maintenance
 - f. Related items
- C. Bearings
 - 1. Goal Statement: 1. Familiar with the types of and number system of bearings, 2. Properly preload bearings to specs, 3. clean, inspect and install bearings, 4. become familiar with viscosity ratings, re-lube intervals, additives.
 - a. Numbering system
 - b. Types of
 - c. Uses
 - d. Adjustments
 - e. Maintenance
 - f. Cleaning and care
 - g. Repacking (lubrication)
- D. Grease & Oil Seals
 - 1. Goal Statement: 1. Properly install oil and grease seals and 2. Be familiar with types, sizes, and functions of shaft seals.
 - a. Technical information
 - b. Types of installation
- E. Lubrication
 - 1. Goal Statement: 1. Become familiar with grease and oil characteristics. 2. Become familiar with grease and oil viscosity ratings, additives and applications.
 - a. Familiarization with different lube types
 - b. Applications
 - c. Grease and oil additives
 - d. Troubleshooting

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): *John Deere Belts and Chains*
- B. Other Resources: Classroom Handouts

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lecture
 - 2. Lab

VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Participation
 - 2. Exams and Quizzes
 - 3. Homework
 - 4. Lab performance

VIII. SPECIFIC COURSE REQUIREMENTS

- A. A minimum grade of 60 is required.
- B. Cheating within the Manufacturing Division: Any violation of academic integrity on assignments, quizzes, or tests will result in a grade of 0 on that assignment, quiz, or test. A second violation in any course after the initial infraction will result in a grade of F for

that course. Any additional violations while in the program will result in a suspension from the program.

- C. Credit by Examination: Credit for the course CANNOT be earned through Credit by Examination.