

Course Objectives/Course Outline
Spokane Community College

Course Title: Motor Maintenance
Prefix and Course Number: ELMT 124

Course Learning Outcomes:

By the end of this course, a student should be able to:

- assemble and disassemble a variety of motors
- describe types and uses of bearings
- remove, inspect, and install bearings
- maintain commutators and proper brush tension
- construct a basic maintenance schedule
- test electrical equipment for opens, shorts, and grounds
- make up electrical splices
- identify types of sprockets, pulleys, chains, and belts

Course Outline:

- I. Motor Identification
- II. Bearings
 - A. Types
 1. Anti-friction
 - a. Roller
 - b. Ball
 2. Sleeve
 - a. Bronze
 - b. Rabbit
 - B. Life Expectancy
 1. Removal, inspection, and installation
 - a. Armature end play
 - b. Causes of misalignment
 - c. Electrical damage
 - d. Shims
 - e. Motor and load alignment
 - f. Caliper readings of shafts and bearings
 - g. Torch heating
 - h. Induction heating
 - i. Torque wrench use
- III. Lubrication
 - A. Seals and Shields
 - B. Greasing Precautions and Practices
 1. Lubricants
 2. Over lubricating
 - C. Yarn Packing
 1. Porous-bearing
- IV. Armatures, Rotors, and Stators
 - A. Testing
 1. Meggering
 2. Opens, shorts, and grounds
 3. Undercutting

4. Hi-potting

V. Commutators and Brushes

- A. Construction
- B. Repair
- C. Surfacing
- D. U and V Slots
- E. Cleaning
- F. Film
- G. Brushes
- H. Brush Pressure
- I. Brush Seating
- J. Brush Sparking

VI. Rigging and Lifting Large Motors

VII. Maintenance Scheduling

VIII. Shaft and Pulley Alignment

IX. Splicing

- A. Types of Tape
- B. Insulating
- C. Splice Kits
- D. Crimping

X. Lab Experiments

- A. Plate Layout
- B. Motor Disassembly
- C. Bearing Removal/Installation
- D. Rigging & Lifting Motors
- E. Insulation Testing
- F. Caliper Measurements
- G. Sprocket, Pulley, & Gear Removal, Installation, and Alignment