

**Course Objectives/Course Outline
Spokane Community College**

Course Title: Mechanical Systems

Prefix and Course Number: IMMA 203

Course Learning Outcomes:

By the end of this course, a student should:

- Explain the fundamental aspects of a mechanical system, such as mechanical power, work, torque, and energy
- Describe basic mechanical machines and their functions
- Identify and describe components of power transmission systems: bearings, couplings, gears, mechanical seals, pulleys, chains, belts, clutches and brakes
- Describe types and characteristics of industrial lubricants and lubrication systems
- Describe principles of machine vibration and how it is measured
- Apply proper inspection techniques to components of power transition systems
- Apply proper maintenance techniques to components of power transmission systems, including set-up, alignment, installation, removal, and replacement
- Demonstrate proper safety techniques when handling shop materials and operating equipment
- Demonstrate professionalism, critical thinking, and teamwork during in-class discussions, presentations, and hands-on activities

Course Outline:

A. *NOTE:* This course schedule is subject to change at the discretion of the instructor.

<p>Week 1: Introduction to Mechanical Systems Mechanical Fundamentals Mechanical System Elements Safety Lab: Mechanical Systems Stations- Introduction and Demo</p>	<p>Week 7: Gears Gearing Terminology and Types Enclosed Gearboxes Lab: Mechanical Systems Stations</p>
<p>Week 2: Lubrication Industrial Lubrication Principles Oil and Grease Lubrication Lab: Mechanical Systems Stations</p>	<p>Week 8: Couplings Coupling Types and Ratings Couplings Installation, Alignment, Maintenance Lab: Mechanical Systems Stations</p>
<p>Week 3: Bearings Bearing Types Bearing Installation and Maintenance Lab: Mechanical Systems Stations</p>	<p>Week 9: Clutches and Brakes Clutch/Brake Types Clutch/Brake Maintenance and Troubleshooting Lab: Mechanical Systems Stations</p>
<p>Week 4: Belt and Chain Drives Flat Belts, V-Belts, Positive Drive Belts Chain Drives Pulleys and Sprockets Lab: Mechanical Systems Stations</p>	<p>Week 10: Vibration Machine Vibration Characteristics Vibration Measurement Lab: Mechanical Systems Stations</p>

Week 5: Seals and Packing Static and Dynamic Seals Packing and Stuffing Boxes Lab: Mechanical Systems Stations	Week 11: Mechanical Systems Lab Lab: Mechanical Systems Stations (Finished Today)
Week 6: Midterm Exam Midterm Exam covers skills learned in Weeks 1 thru 5	Week 12: Final Exam Final Exam covers skills learned in Weeks 1 thru 11 Final Assessment: Mechanical Systems Stations (Instructor, self-evaluation, and peer evaluation)