



# COURSE OUTLINE

## MCH253

Prepared: Howard Gray Approved: Corey Meunier

<b>Course Code: Title</b>	MCH253: BEARINGS, SEALS AND LUBRICATION
<b>Program Number: Name</b>	4039: MECH. ENG. TN-MANUFA
<b>Department:</b>	MECHANICAL TECHNIQUES PS
<b>Semester/Term:</b>	18S
<b>Course Description:</b>	This course will deal with various friction and anti-friction type bearings, dynamic and static type seals and Lubrication both oil and grease. The student will learn the different styles of bearings used today including design, working conditions, loading, fits, preparation, installation, failure types and preventative maintenance. The student will learn about the importance of correct seal type, design, application installation and maintenance. The student will learn about lubrication types, properties and various applications.
<b>Total Credits:</b>	2
<b>Hours/Week:</b>	2
<b>Total Hours:</b>	30
<b>Substitutes:</b>	MCH226
<b>Course Evaluation:</b>	Passing Grade: 50%, D
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	<p>Grade                      Definition Grade Point Equivalent                      A+ 90 - 100% 4.00                      A 80 - 89%                      B 70 - 79% 3.00                      C 60 - 69% 2.00                      D 50 - 59% 1.00                      F (Fail) 49% and below 0.00</p> <p>CR (Credit) Credit for diploma requirements has been awarded.                      S Satisfactory achievement in field /clinical placement or non-graded subject area.                      U Unsatisfactory achievement in field/clinical placement or non-graded subject area.                      X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.                      NR Grade not reported to Registrar's office.                      W Student has withdrawn from the course without academic penalty.</p>

**Evaluation Process and Grading System:**

Evaluation Type	Evaluation Weight
Assignments	30%
Tests	70%

**Books and Required Resources:**

Millwright Manual by British Columbia  
Publisher: Queens Printer  
ISBN: 0-7718-9473-2  
Safety Boots, Safety Glasses

**Course Outcomes and Learning Objectives:****Course Outcome 1.**

Upon successful completion of this course, the student will be able to Identify the various styles and uses of Friction type bearings.:

**Learning Objectives 1.**

- Describe each styles of bearing housing
- Define dimensions for housings and bearings
- List Friction bearing materials
- Identify different housing designs
- Describe babbitt bearings
- Calculate bearing Clearances
- Describe various methods of Thrust control

**Course Outcome 2.**

Upon successful completion of this course, the student will be able to Identify the various styles of anti-friction type bearings.

**Learning Objectives 2.**

- Classify Anti-friction bearing components
- Classify different types of anti-friction bearings
- Describe the load conditions for each style of bearing
- Explain the bearing size and classifications

**Course Outcome 3.**

Upon successful completion of this course, the student will be able to Demonstrate installing and removing bearings

**Learning Objectives 3.**

- Perform shaft and housing checks
- Install bearings on various types of fits
- Use different accessories to remove bearings
- Install tapered-bore bearings
- Calculate and correctly set bearing clearances
- Install and remove Pillow blocks of different designs

## **Course Outcome 4.**

Upon successful completion of this course, the student will be able to Demonstrate the maintenance of all types of Bearings and Housing.

## **Learning Objectives 4.**

- Understand the importance of keeping bearings clean
- Understand the importance of keeping bearings in good condition
- Apply good maintenance practices

## **Course Outcome 5.**

Upon successful completion of this course, the student will be able to Identify various Static Seals and their applications

## **Learning Objectives 5.**

- Understand what a static seal is
- Understand what a Gasket is
- Understand what an O-Ring is
- Explain the different types of Sealants
- Demonstrate how to install and remove static seals

## **Course Outcome 6.**

Upon successful completion of this course, the student will be able to Identify various Dynamic Seals and their applications

## **Learning Objectives 6.**

- Understand what a dynamic seal is
- Identify the various contact Seals
- Identify the various clearance Seals
- Demonstrate how to install and remove dynamic seals

## **Course Outcome 7.**

Upon successful completion of this course, the student will Understand Lubrication principles and the properties of Oil and Grease.

## **Learning Objectives 7.**

- Understand the properties of oil
- Understand the properties of grease
- Understand oil lubrication
- Understand grease lubrication
- Demonstrate the safe handling of lubricants

**Date:**

Monday, April 23, 2018

Please refer to the course outline addendum on the Learning Management System for further information.