



**I. COURSE DESCRIPTION:**

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.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

**1. *Discuss the various styles and uses of Friction type bearings***Potential Elements of the Performance:

- Styles of housings
- Dimensions
- Styles of Friction bearings
- Design
- Babbitt bearings
- Liners
- Clearances
- Thrust control

**2. *Discuss the various styles of anti-friction type bearings***Potential Elements of the Performance:

- Anti-friction bearing parts
- Types of anti-friction bearings
- Working conditions
- Bearing size and design

**3. *Discuss and demonstrate installing and removing bearings***Potential Elements of the Performance:

- Shaft and housing checks
- Various types of fits
- Using accessories
- Installing tapered-bore bearings
- Correctly set bearing clearances
- Bearing removal

- Pillow block design/installation /removal
- Mounting other bearings

#### **4. *Discuss Maintenance of all Bearings***

##### Potential Elements of the Performance:

- Importance of keeping bearings clean
- Keeping bearings in good condition
- Special cautions( installation/alignment )
- Importance of good maintenance practices

#### **5. *Discuss various Static Seals***

##### Potential Elements of the Performance:

- Understand what a static seal is
- Gaskets
- O-Rings
- Sealants

#### **6. *Discuss Dynamic Seals***

##### Potential Elements of the Performance:

- Understand what a dynamic seal is
- Contact Seals
- Clearance Seals

#### **7. *Discuss Lubrication***

##### Potential Elements of the Performance:

- Understand the properties of oil
- Understand the properties of grease
- Understand oil lubrication
- Understand grease lubrication
- Safe handling of lubricants

### **III. TOPICS:**

1. Friction Bearings
2. Anti-friction Bearings
3. Installation and removal of bearings
4. Maintenance of Bearings
5. Static Seals
6. Dynamic Seals
7. Lubrication

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**  
**Millwright Manual/ Industrial Trades Handbook**  
**Keyed lock, Safety boots, Safety glasses.**

**V. EVALUATION PROCESS/GRADING SYSTEM:**

- Attendance 10% (13/15)
- Tests 60%
- Assignments 30%

The following semester grades will be assigned to students:

<b>Grade</b>	<b>Definition</b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
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.	

**V. SPECIAL NOTES**

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

Substitute course information is available in the Registrar's office.

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade "C", (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations. Announcements, news, the academic calendar of events, class cancellations, your learning management system (LMS), and much more are also accessible through the student portal. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.