



**I. COURSE DESCRIPTION: This course will deal with various friction and anti-friction type bearings as well as dynamic and static type seals. 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 seal design as well as 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

### V. EVALUATION PROCESS/GRADING SYSTEM:

- Tests 40%
- Assignments 40%
- Final Exam/work performance 20%

The following semester grades will be assigned to students in postsecondary courses:

<b>Grade</b>	<b>Definition</b>	<i>Grade Point Equivalent</i>
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
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.	

## VI. SPECIAL NOTES:

### Special Needs:

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

### 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.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. 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.

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.

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

*<include any other special notes appropriate to your course>*

**VII. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

**VIII. DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.