COURSE INFORMATION FORM

DISCIPLINE: INTE
COURSE TITLE: Advanced Industrial Machine Repair
CR.HR: 3  LECT HR: 2  LAB HR: 2  CLIN/INTERN HR: 0  CLOCK HR: 0

CATALOG DESCRIPTION
This course is designed to present advanced principles of the industrial maintenance on a wide range of industrial equipment and procedures, including proper selection of bearings, seals, gears. Topics include replacement of seals, bearings, proper installation and setup. Correct application and selection of tools. This course will also cover alignment and vibration analysis.

PREREQUISITES
INTE 140 with a C grade or higher

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)
Upon completion of this course, the student will be able to:

1. Identify and select the appropriate bearings, seals and components.
2. Assemble components following proper alignment and fit procedures.
3. Properly select and apply lubrication.
4. Align shafts, motors and gearboxes with dial indicators and lasers.
5. Perform vibration analysis.
6. Interpret vibration analysis results.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>ESO</th>
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PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

1. The ability to apply foundational skills in an industrial setting, safely and to industry guidelines. (1-6)
2. The ability to exhibit competence in the entry-level skills of technical profession in industrial technology. (3-6)
3. The ability to exhibit competence in the entry-level skills of industrial maintenance. (3, 5, 6)

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Written Examinations (1, 2, 5, 6)
2. Project (3-6)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I.  **Bearings**
   A.  Plain bearings
   B.  Antifriction bearings
      1.  Ball bearings
         (a) Selection
         (b) Installation
         (c) Maintenance and lubrication
      2.  Roller bearings
         (a) Selection
         (b) Installation
         (c) Maintenance and lubrication
      3.  Needle bearings
         (a) Selection
         (b) Installation
         (c) Maintenance and lubrication

II.  **Seals and gaskets**
   A.  Material selection
   B.  Installation

III. **Brakes and clutches**
    A.  Selection
    B.  Maintenance

IV.  **Coupling alignment**
    A.  Soft foot
    B.  Mechanical dial indicators

V.  **Vibration analysis**
    A.  Introduction
    B.  Vibration condition monitoring
    C.  Vibration analysis