Pumps, Compressors & Mechanical Drives (INMT 2303)

Credit: 3 semester credit hours (2 hours lecture, 4 hours lab)

Prerequisite/Co-requisite: INMT 1305

Course Description
A study of the theory and operations of various types of pumps and compressors. Topics include mechanical power transmission systems including gears, v-belts, and chain drives.

Required Textbook and Materials
   a. ISBN number is 0-7645-4171-1
2. Equipment to be furnished by students: Required at instructor discretion.
   a. Safety Glasses (Z 87+)
   b. Gloves (leather or equal)
   c. Long pants and long sleeve shirt
   d. Shoes or Boots (substantial leather or equal w/ heels - no open toes)

Course Objectives
Upon completion of this course, the student will be able to:
1. Identify the principles involved in the operation of centrifugal and positive displacement pumps and compressors.
2. Identify and explain the function of various components in pumps and compressors.
3. Disassemble and correctly reassemble pumps, compressors and mechanical drives.
4. Troubleshoot pumps, compressors and mechanical drives.

Course Outline
I. Introduction
   A. Faculty
II. Course Safety
   A. Safety in Lab
   B. Safety when using tools
III. Principles of Compressor Operation
   A. How compressors work
   B. Uses of compressors
IV. Compressor Types
   A. Centrifugal Compressors
   B. Reciprocating Compressors
V. Pump Types
   A. Centrifugal Pumps
   B. Reciprocating Pumps
VI. Types of Mechanical Drives
   A. Types of mechanical drives
   B. Uses of mechanical drives
VII. Pumps, Compressors, and Drives
   A. Components of Pumps, Compressors and drives
   B. Similarity of Pumps, Compressors and Drives
VIII. Rebuilding Pumps, Compressors, and Mechanical Drives
   A. Disassemble and rebuild one of each
   B. Discuss rebuild techniques used.

Approved 12/2013
INMT 2303
Course Syllabus

IX. Troubleshooting Pumps, Compressors, and Mechanical Drives
   A. The need for troubleshooting
   B. The techniques

X. Equipment Testing
   A. The techniques used to test equipment

XI. Evaluation
   A. Student Safety
   B. Student Work

Grade Scale
90 – 100      A
80 – 89      B
70 – 79      C
60 – 69      D
0 – 59      F

Course Evaluation
Final grades will be calculated according to the following criteria:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Major test</td>
<td>75%</td>
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<tr>
<td>Class participation</td>
<td>25%</td>
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Course Requirements
1. Disassemble and reassemble pumps
2. Disassemble and reassemble compressors
3. Assemble a mechanical drive
4. Troubleshoot a mechanical drive system

Disabilities Statement
The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the online resource:
http://www.lit.edu/depts/stuserv/special/defaults.aspx

Student Code of Conduct Statement
It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the LIT Catalog and Student Handbook. The LIT Catalog and Student Handbook may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office.
Starfish
LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

Course Schedule

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reference</th>
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<tbody>
<tr>
<td>1</td>
<td>Course introduction and policies</td>
<td>Handouts</td>
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<td></td>
<td>• Lecture</td>
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<td></td>
<td>• Lab: Practice Drawing</td>
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<td>• Test 1</td>
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<td>2</td>
<td>Introduction to Pumps</td>
<td>Chapter 25</td>
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<td>• Lecture</td>
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<td>• Lab: Practice</td>
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<td>3-6</td>
<td>Pump disassembly &amp; Reassembly</td>
<td>Chapter 25</td>
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<td>• Lab: Practice</td>
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<td>• Test 2</td>
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<td>7</td>
<td>Introduction to Compressors</td>
<td>Chapter 26</td>
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<td>• Lab: Practice</td>
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<td>8-10</td>
<td>Compressor disassembly and Reassembly</td>
<td>Chapter 26</td>
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<td>11-16</td>
<td>Understanding Mechanical drives</td>
<td>Chapters 10,11,12,13,14,15,16,17</td>
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<td>• Lab: Bench Practice</td>
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<td>• Final Exam</td>
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