

Machinery Installation (INMT 2301)



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

Prerequisite/Co-requisite: INMT 1305

Course Description

Students utilize skills acquired in previous studies. Machinery foundation, locations, installation, and alignment activities are practiced and tested. Emphasis is on the various methods of shaft alignment including laser shaft alignment.

Required Textbook and Materials

1. *Audel Millwrights & Mechanics Guide By Davis and Nelson 5th edition*
 - a. ISBN number is 0-7645-4171-1.
1. 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. Perform field layouts for locating machinery; construct machine foundation according to machinery foundation prints.
2. Install machinery on to a foundation which includes leveling and securing.
3. Explain the applications of the various types of shaft couplings.
4. Align pump and motor shafts using the various methods of shaft alignment.

Course Outline

1. Introduction
 - a. Introduce the Faculty
 - b. Introduce the Subject
2. Safety-Lockout/Tagout, Work permits
 - a. Discuss Safety in the Lab
 - b. Discuss Work Permit in Industry
3. Machinery application
 - a. Discuss the machinery to be used in class
 - b. Discuss the Safety to be used in class
4. Machinery location
 - a. Show students the machinery for class
 - b. Show students the work environment
5. Machinery handling equipment
 - a. Demonstrate load handling equipment
 - b. Show students the work environment
6. Machinery handling techniques and safety
 - a. Demo some of the load handling equipment

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INMT 2301
Course Syllabus

- b. Discuss the safety required in the lab
- 7. Machinery setting and alignment
 - a. Discuss the use of laser
 - b. Discuss the safety concerns using the laser
- 8. Couplings
 - a. Identify the different types of couplings
 - b. Discuss the uses of each
- 9. Shaft alignments
 - a. Practice alignment with indicators
 - b. Practice alignment with laser
- 10. Inspection
 - a. Discuss the need for inspections
 - b. Demo the different ways to inspect equipment
- 11. Machinery function testing
 - a. Discuss the different tests to apply
 - b. Apply tests to machinery
- 12. Machinery operation/evaluation
 - a. Operate Machinery
 - b. Evaluation the operation

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:

<i>Activity</i>	<i>Percentage</i>
Major test	75%
Class participation	25%
<i>Total</i>	<i>100%</i>

Course Requirements

- 1. Tools used
- 2. Measuring Instruments used
- 3. Safely using Laser alignment devices
- 4. Installing rotating equipment
- 5. Aligning equipment

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.

AI STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI / ChatGPT in their courses.

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

Week	Topic	Reference
1	Course introduction and policies <ul style="list-style-type: none">• Lecture• Lab: Practice	Handouts
2	Arc Method of Installation <ul style="list-style-type: none">• Lecture• Lab: Practice	Chapter 9
3	3-4-5 Method of Installation <ul style="list-style-type: none">• Lecture• Lab: Practice	Chapter 9
4	Perpendicular Distance Method <ul style="list-style-type: none">• Lecture• Lab: Practice	Chapter 9
5	Reinforced-Concrete Foundations <ul style="list-style-type: none">• Lecture• Lab: Practice	Chapter 9
6	Vibration and Noise Prevention <ul style="list-style-type: none">• Lecture• Lab: Practice	Chapter 9
7	Foundations <ul style="list-style-type: none">• Lecture• Lab: Practice	Chapter 9
8-16	Methods of Alignment <ul style="list-style-type: none">• Lecture• Lab: Practice	Lab