

## **Rigging and Conveying Systems (HYDR 1301)**



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

### **Course Description**

Preparation to safely direct and move heavy objects selecting the appropriate media, such as fiber rope, wire rope, or chain, in conjunction with the correct hardware and lifting devices, such as hoists and cranes. Emphasis on inspection, care, and maintenance of rigging equipment used in maintenance or production systems.

### **Required Textbook and Materials**

1. *NCCER Basic Rigger Trainee Guide Contren Learning Series 2011*  
ISBN number: -978-0-13-215456-7
2. Equipment to be furnished by students:
  - a. Hard Hat (red)
  - b. Hearing protection (Ear plugs or Muffs 29 NRR +)
  - c. Safety Glasses (Z87+)
  - d. Gloves (leather or equal)
  - e. 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. Estimate load weight, determine load center of gravity, and apply principles to rigging.
2. Maintain, inspect, select, and properly use lifting rope devices for securing loads.
3. Use standard hand signals for directing operation of overhead and mobile type cranes while observing safety precautions.
4. Move loads horizontally in a safe manner using jacks, rollers, and skids.
5. Identify construction and maintenance of the four basic types of conveyor used in material handling activities as well as the slider bed and overhead chain system.

### **Course Outline**

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| <p>A. Discuss the requirements of work permits</p> <ol style="list-style-type: none"><li>a. Discuss the need for permits</li><li>b. Discuss the required authorizations</li></ol> <p>B. Discuss the required tools for job</p> <ol style="list-style-type: none"><li>a. Is a crane required</li><li>b. Are Web or Steel slings required</li></ol> | <p>C. Discuss the Proper Protective Equipment (PPE) for job</p> <ol style="list-style-type: none"><li>a. Special safety requirements</li><li>b. Special training</li></ol> <p>D. Discuss layout plot plan</p> <ol style="list-style-type: none"><li>a. How will workers setup</li><li>b. How will crane setup</li></ol> <p>E. Perform field layout for location of machinery</p> <ol style="list-style-type: none"><li>a. Do a rough layout on paper</li></ol> |
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- b. Transfer figures to foundation
- F. Install machinery on foundation which includes leveling and securing
  - a. Set machinery
  - b. Assist in leveling
- G. Discuss the need for job site cleanup
- a. Clean-up is part of Job
- b. Housekeeping promotes safety
- H. Discuss the entry of equipment into records file
  - a. Whose Job is it to enter work in work file
  - b. When to enter work

**Grade Scale**

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

**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](http://www.lit.edu) or obtained in print upon request at the Student Services Office.

**Course Schedule**

Week	Topic	Reference
1/2	Slings <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Synthetic Slings Practice</li></ul>	Session 1
3/4	Slings <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Wire Rope Slings</li><li>• Performance Testing (Task 1)</li></ul>	Session 2

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5/6	Hitches	Session 3
	<ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Vertical Hitch</li><li>• Lab Choker Hitch</li><li>• Lab Basket Hitch</li><li>• Performance Testing (Task 2)</li></ul>	
7/8	Rigging Hardware, Part one	Session 4
	<ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Shackles</li><li>• Lab: Eyebolts</li></ul>	
9/10	Rigging Hardware, Part Two	Session 5
	<ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Lifting Clamps</li><li>• Lab: Rigging Hooks</li><li>• Performance Testing (Task 3)</li></ul>	
11/12	Sling Stress and Hoists	Session 6
	<ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Sling Stress</li><li>• Lab Chain Hoists</li></ul>	
13/14	Rigging Operations and Practice, Part One	Session 7
	<ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Rated Capacity</li><li>• Lab Sling Attachment</li><li>• Hardware Attachment</li><li>• Performance Testing (Task 4)</li></ul>	
15/16	Rigging Operations and Practice, Part Two	Session 8
	<ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Load Control</li><li>• Hand Signals</li><li>• Review</li><li>• Module Examination</li><li>•</li></ul>	

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