

Advanced Math for Hoisting & Rigging Syllabus

Time: 8 hours

Maximum Class Size: 20

Prerequisites: Hoisting & Rigging

Course Description: This course will focus on the advanced math skills necessary to become a Master Rigger. The curriculum is designed to further the participant's knowledge as a safe and productive rigger by extensive rigging math practice. All concepts will comply with OSHA Crane and Derrick Standard: 1926.1427 Subpart CC regarding the use of cranes and derricks in construction. It also addresses ANSI A10.42: Rigging Qualifications and Responsibilities.

Goals/Objectives/Student Learning Outcomes:

- Solve problems involving linear distance, area and volume using standard formulas
- Determine the load weights and centers of gravity for sample common construction materials of regular and irregular shapes using standard formulas
- Describe the effect that the sling angle has on slings and hardware
- Locate an object's center of gravity when it's offset
- Determine the vertical reaction of slings when one sling is carrying more weight than the other
- Calculate the length and angles of the rigging triangle using mathematical methods
- Solve problems involving calculating sling tension for even and uneven legs using standard formulas

Standards

- OSHA Crane and Derrick Standard: 1926.1427 Subpart CC regarding the use of cranes and derricks in construction
- ANSI A10.42: Rigging Qualifications and Responsibilities.

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm
- Upon entering classroom, all participants must sign in and be seated by 6:30 am

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- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Textbooks/Readings/Materials

- LIUNA: *Hoisting & Rigging* IG/PG
- Hoisting & Rigging Student Handout Packet
- LIUNA: Advanced Math for Hoisting & Rigging Exit Exam A or B
- LIUNA: Advanced Math for Hoisting & Rigging Power Point
- Advanced Math for Hoisting & Rigging Exit Exam Answer Sheets

Personal Protective Equipment

- 20 pairs of gloves
- 20 pairs of Safety Glasses
- 20 pairs of Ear plugs
- 20 hard hats

Course Requirements

To receive credit for the course, participants must:

- Be present for full eight hours
- Participate in all classroom exercises
- Pass a written exam

Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment
- Participants who are on “light duty” are not allowed to take this course due to the physically demanding requirements.

Assessment and Grading

Participants will be assessed on the following:

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- All written exams must be passed with a score of 80% or above.
- All hands-on exercises are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.