

Course Syllabus

Course Name: Rigging

Course Number: MARR 54

Course Credits and Hours: 2 credits; 90 hours lecture/lab

Prerequisites: None

Course Description: The focus of this course is the survey, repair, maintenance, and necessary replacement to components of the rigging of a sailboat. Much of the theory and practice is also applicable to the wire components of a fishing vessel or motor boat. Emphasis is placed on the close inspection of rigging components from the mast step to masthead for signs of corrosion, structural fatigue, and improper installations. Practice is also provided in the re-rigging of boats including the swaging of fittings onto wire rope, proper installation of toggles to relieve rig stress, and installation of a roller reefing system.

Course Objectives:

Upon successful completion of this course the student will be able to:

1. Survey a sailboat's rig from mast step to masthead
2. Attach fittings to spars with rivets, machine screws, bolts, and necessary compression tubes
3. Attach fittings onto wire rope with a hydraulic swaging machine, micro-press, and mechanical fittings (Norsemen)
4. Rig necessary lines to safely go aloft for rig inspection in a boatswain's chair
5. Install and rig a roller furling system
6. Replace the running and standing rigging
7. Practice tuning of standing rigging

Course Outline:

I. SURVEYING THE RIG

- A. Standing Rigging
- B. Running Rigging
- C. Tangs
- D. Chainplates
- E. Spreaders
- F. Toggles

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- G. Turnbuckles
- H. Sheaves
- I. Hound/Masthead fitting
- J. Mast Step/Base
- K. Condition of Mast Section
- L. Electrical

II. ATTACHEMENT OF FITTINGS

- A. Pop Rivets
- B. Machine Screws
 - 1. Threading
- C. Compression Tubes
- D. Attaching Fittings To Wood Masts
- E. Attaching Fittings to Composite Masts

III. ATTACHING FITTINGS TO WIRE ROPE

- A. Swaging
- B. Nicro-press
- C. Mechanical
 - 1. Norseman
 - 2. Wire-clamps

IV. GOING ALOFT

- A. Rigging the Necessary Lines
- B. Safety
 - 1. Safety Line
 - 2. Bosun's Chair
 - 3. Tying Off Halyard
- C. Practicing Procedure

V. ROLLER FURLING

- A. Description and Use
- B. Installation

VI. REPLACEMENT OF RUNNING AND STANDING RIGGING

- A. Measurement
- B. Cutting

VII. TUNING OF THE RIG

- A. Rig Tensioning Tool
- B. Practice "Sighting" the Mast
- C. Mast Bend

VIII. TROUBLESHOOTING

- A. Why is Rig Out of Tune

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- B. Halyard(s) Chafing
- C. Too Much Flex in the Mast

Evaluation:

Standard Alpha System:

- A 94-100
- B 88- 93
- C 80- 87
- D 70- 80
- F below 70

Evaluation by percentages:

- 40% - Hands on projects and exercises; graded for accuracy, neatness and attention to detail.
- 40% - Written tests; given to determine understanding of principals
- 20% - METC's Work Habits Evaluation*

*The evaluation addresses behavior such as "Does the student report to class on time and prepared? Does the student use lab time wisely? Does the student cooperate with the instructor and team members? Is METC policy followed? Does the student participate in class discussions?"

Many handouts will be issued to you throughout your career at the METC. It is imperative that you keep a three-ring binder with labeled dividers. During some written tests you will be allowed to refer to your notes. You will also find it beneficial to refer to your notebook while executing projects. Your notebook will directly effect your written and "hands on" project scores. Your notebooks will periodically be turned in and evaluated.

Prompt attendance is vital to your success. Many "hands-on" projects and demonstrations simply can not be repeated. The table below demonstrates how absences and tardiness will limit how high a grade you will be eligible to receive for this course.

If you miss:	You are eligible for a(n)
3.5 hours or less	A
7 hours or less	B
10.5 hours or less	C
14 hours or less	D
More than 14 hours	F

Each Tardy will equal 1/2 Hour Absent. This includes being late to returning to class after a designated break.

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Please call to inform if you are going to be absent. Many of our projects are tackled as a team. We need to know if a team member is going to be absent. The answering machine is on phone # **832-3682**.

If you do not call to notify of your absence and there is a test, and you are granted permission to take a make-up test, a 14 point (based on 100 pt. scale) penalty can be deducted from your make-up score. Be advised that any make-up exam administered may be different in format from the original exam, and may include oral examination.

Textbooks:

Boatowner's Mechanical And Electrical Manual, Nigel Calder, International Marine-McGraw/Hill