

Course: Auxiliary Machinery I (ME) EN-1211
Spring 2016

Instructor: Lt. Olivia Humphrey, Assistant Professor
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Office Hours: Wed and Friday 5th period (1200-1250) Thursday 6th period (1300-1350)
Text: Excerpts from Department of Energy (DOE) Fundamentals Handbook
Marine Engineering Workbook and Illustrations
Engineering Training Manual (ETM), TS Kennedy
Study Guide handouts

Prerequisite: Intro to Steam Engineering (EN-1111)

Course Description:

Auxiliary Machinery I is a (3.5) credit course that lays the foundation for future engineering courses. Students will learn the basic principles of construction, operation, maintenance and repair of piping systems. Topics include pipe and fittings: valves, pumps and heat exchangers; pressure, temperature, level and flow measurement; piping and instrument diagrams (P & ID) and blueprint reading. Both shore side and marine applications are discussed.

This is a required course for all engineering students and contains STCW knowledge and practical elements. A grade of C- or better is required to pass.

Homework:

Homework will be assigned and will be subject material for quizzes and exams. All homework assignments must be passed in on due dates with no exceptions. Late or illegible homework will not be accepted, and graded as a zero. For medical exemptions, homework must be passed in on an agreed upon date with me.

Quizzes:

Quizzes will be given throughout the semester and will be announced in advance. Material for the quizzes will come from subject matter covered in class, labs, reading assignments, handouts, weh.maritime.edu website, course textbooks and homework. There will be no make-up quizzes given.

Attendance:

Students with two (2) or less unexcused absences will have the lowest QUIZ grade dropped. There will be NO quiz make-ups. For each unexcused absence over two (2) there will be a 1-point deduction from the final course average. Labs are mandatory. Each missed Lab will cause the final course average to be reduced by 3.33%.

Students with six (6) unexcused absences will have an automatic failure in the course.

Grading:

Quizzes (50%), Final (30%), Homework (10%) and Labs (10%)

Grading Scale:

A: 95-100	C+: 77-79
A-: 90-94	C: 73-76
B+: 87-89	C-: 70-72
B: 83-86	F: > 70
B-: 80-82	

Standard in Training, Certification, and Watch keeping (STCW):

Auxiliary Machinery II is an STCW Course. STCW policy requires a passing grade of 70 or higher for any STCW course.

The STCW course grading will be A, B, C, C- or F. No "D" grading policy. You will Pass or Fail. Failing will require make up the course.

Special Liberty Policy:

Please do not ask the Instructor to sign a special liberty request. The only special liberties recognized by the engineering department are those of an emergency nature which are granted directly by the Commandant of Cadets office.

Uniform and Dress Code:

Cadets are expected to be in proper uniform of the day as announced by the Commandant of Cadets.

CELL PHONES RINGERS MUST BE OFF!!!!

Entrance Requirements

- Comprehend reading assignments at the post secondary level
- Perform basic arithmetic problems
- Ability to follow a fluid piping system drawing
- Demonstrate knowledge of the main steam and water cycle
- Demonstrate knowledge of the fuel oil service system
- Demonstrate knowledge of the lube oil service system

Learning Objectives

Demonstrate knowledge and understanding of the following STCW elements:

- AB-E-A5.1 Basic knowledge of the function of auxiliary machinery
- AB-E-A5.1 Basic knowledge of the operation of auxiliary machinery
- AB-E-A6.1 Knowledge of oil transfer operations
- AB-E-A6.1 Preparations for fuelling and transfer operations

- AB-E-A6.1 Procedures for connecting and disconnecting fuelling and transfer hoses
- AB-E-A6.1 Procedures relating to incidents that may arise during fuelling or transferring operation
- AB-E-A6.1 Procedures for securing from fuelling and transfer operations
- AB-E-A8.1 Safe operation of valves and pumps
- AB-E-B1.1 Ability to use lubrication materials and equipment
- OICEW-A4.1 Basic construction and operation principles of pumps
- OICEW-A4.1 Basic construction and operation principles of heat exchanges
- OICEW-A5.2 Operation of pumping systems
- OICEW-A5.2 Routine pumping operations
- OICEW-C1.7 Use of various types of sealants and packings
- OICEW-C2.2 Appropriate basic mechanical knowledge and skills
- OICEW-C2.5 Design characteristics and selection of materials in construction of equipment
- OICEW-C2.6 Interpretation of machinery drawings and handbooks

Demonstrate proficiency in the following skills:

- ABE-1-6A Assist with fuel oil transfer

Learning Disabilities:

MMA is committed to providing reasonable accommodations to students with documented disabilities. Students who believe they need accommodations in this class are required to contact Fran Tishkevich, Acting director of Disability Compliance, the first day of class at ext 2208 or by e-mail at ftishkevich@maritime.edu

Student Learning Outcomes:

The main objective of the course is to give the student a basic understanding of the Installation, Operation and Maintenance of Auxiliary Systems and Equipment that relate to the Marine Industry.

TOPICS

1. Steam Cycle Review
2. Fasteners and Hardware
3. Piping
4. Valves

5. Steam Traps

6. Filters and Strainers

7. Temperature Measurements

8. Pressure Measurements

9. Level Measurements

10. Heat Exchangers

11. Pumps Overview

12. Process Control

READING ASSIGNMENTS

- Intro to Steam Engineering ch.1
Study Guide pg. 9-18
Study Guide pg. 105-145
DOE pg.201-250 pg. 394-400
Study Guide pg.187-243
- DOE pg.251-255
Study Guide pg.159-172
- DOE pg. 256-264
Study Guide pg.147-157
- DOE pg. 43-58
Study Guide pg.61-71
- DOE pg. 59-71
Study Guide pg. 73-95
- DOE pg.72-88
Study Guide pg. 97-104
- DOE pg. 293-310
- DOE pg. 265-292
Study Guide pg. 247-275
- DOE pg. 341-393