COURSE: THERMO / FLUIDS LAB EN4112 SPRING 2016

INSTRUCTOR: F. Murray **Office:** Harrington 222A **CREDIT:** One

TEXTS: Your Thermodynamics and Fluid Mechanics textbooks

GRADING: This course is an STCW knowledge-based assessment course requiring a minimum grade of C-, or 70%, for the semester grade. In accordance with the Engineering Department STCW grading policy, ***a grade lower than 70% receives an F for the course.***
The semester grade will be assigned as follows:

In class participation	10%
Labs - Most labs have calculations (or homeworks) associated with them.	50%
Energy Presentation/Report Lab #9	20%
Design Project Lab #10	20%

GENERAL: The course will consist of twelve lab periods meeting every week. Lab data will be taken in small groups. Calculations for In-Lab work may be done as a team. Outside-Lab assignments will be an individual effort.

STCW Learning Objectives

Demonstrate knowledge and understanding of the following STCW elements:

- OICEW-A4.1 Principles of fluid flow
- OICEW-A5.1 Operational characteristics of pumps
- OICEW-A5.1 Operational characteristics of piping systems

LEARNING OBJECTIVES:
At the completion of this course, the student should be able to:

Conduct basic engineering experiments
Appreciate the differences between theoretical and actual engineering systems
Work as a team on technical problems
Analyze data and formulate engineering conclusions
Apply fluids and thermodynamic concepts to physical systems
Organize and display data in a logical and professional manner
Write a professional technical document
Understand the operational characteristics of piping systems
Understand operational characteristics of pumps
Understand principles of fluid flow

Prof. Murray Thermo Fluids Lab Lab Schedule SPRING '16

WEEK	LAB TOPIC	NOTES
#1	Greek letters - Density, specific weight and specific gravity	Turn in solutions to problems @ end of class
#2 15 Mar	Conservation of energy, specific heats	Lab Calculations due end of class
#3 22 Mar	Buoyancy	HW assigned after this lab. Due next lab.
#4 29 Mar	Air conditioning lab - refrigeration	Lab Calculations due end of class
#5 5 Apr	Air conditioning lab – Energy balance	Lab Calculations due end of class
#6 12 Apr	Air conditioning lab - with steam	Lab Calculations due end of class
#7 19 Apr	Horizontal pipe - friction losses	Lab Calculations due end of class
#8 26 Apr	Horizontal pipe - minor losses Plus ***assignment of energy presentations.***	Lab Calculations due end of class
#9 3 May	***Selected*** energy presentations. Some individuals will give their presentation in class today and some will not. Students are selected randomly. All energy reports are due ***after*** this class.	After this class, all students send me an electronic copy of your report via email: fmurray@maritime.edu
#10 10 May	Design Project ***Assignment.*** You will be designing a piping system. **Design project is due in my office: 24 May'16 by noontime**	Deliver a ***print-out*** of your piping system design to my office. Rm 222A Harrington.
#11 17 May	Geo Thermal energy Discussion of MMA's system **This is CG exam week. All Marine Eng majors are exempt from lab this week.**	****This is CG exam week.**
#12 24 May	Centrifugal pump lab	Lab calculations due end of class

ATTENDANCE: If you are going to miss a lab, please advise me prior to that lab. Approved absences do not impact your grade. Each unexcused absence results in a failure for that lab, which obviously will impact your final grade.

Cadets with disabilities: Students who may need accommodations in this class are invited to contact the Director of Disability Compliance for assistance.