

**MASSACHUSETTS MARITIME ACADEMY**  
**DEPARTMENT OF ENGINEERING**  
**EN-4112 – Thermo-Fluids Laboratory**  
**Syllabus and Lab Schedule**  
**Spring 2013**

**INSTRUCTOR:** Matthew Frain, Ph.D., P.E.  
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(508)830-5000 ext. 2258

**OFFICE HOURS:** Mondays, Wednesdays, and Fridays 3<sup>rd</sup> period (1000-1100), or by appointment.

**PREREQUISITES:** Thermodynamics EN-3211, Fluid Mechanics EN-4111 (co-requisite).

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

- understand principles of fluid flow
- understand operational characteristics of pumps
- understand operational characteristics of piping systems
- write professional technical documents
- organize and display data in a logical and professional manner
- apply fluids and thermodynamic concepts to physical systems
- conduct basic engineering experiments
- analyze data and formulate engineering conclusions
- appreciate the differences between theoretical and actual engineering systems
- work as a team on technical problems

**GRADING:**

- Attendance and Participation 20%
- Quizzes 30%
- Reports (2) 30% (15% each)
- Design Project 20%

**ATTENDANCE:** NO LAB MAKE-UPS UNLESS ABSENCE IS DOCUMENTED (watch, sickness, varsity athletics).

One (1) unexcused absence will result in loss of 10% of overall grade and loss of grade for assignments related to that laboratory absence (homework, quizzes, or reports).

More than one (1) unexcused absence will result in failure of the laboratory.

**QUIZZES:** Short weekly quizzes will be administered based on topic of the week's lab.

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**REPORTS &  
PROJECT:**

Two of the 12 labs will require the student to produce a technical report. The final lab will be a presentation of a project problem to be solved and presented in a final project report.

These reports are expected to be neat, professional, and free of technical, grammatical, and spelling errors. The format of the report will be discussed when the reports are assigned. Use of the Writing Resource Center is not mandatory but is highly encouraged.

All reports and project assignments will be submitted electronically via TurnItIn. Login instructions and due dates for each report and project will be provided in a separate assignment handout.

**GENERAL  
EXPECTATIONS:**

Students are expected to bring a notebook, calculator, and writing instruments to each lab.

Attire for this laboratory is the designated uniform of the day. Boiler suits are not permitted or required.

All lab equipment and work areas are to be clean and dry prior to students leaving the lab. Specific instructions will be provided during each lab about the care of the lab equipment.

All assignments requiring submission of a paper hardcopy (in-lab assignments, quizzes, etc.) are expected to be neat, clean, stapled, and labeled with the student's name. Sloppy and soiled papers will not be accepted.

All assignments are expected to be done by the individual student. Copying of any other students' work or permitting your work to be copied are honor code violations and will be treated accordingly.