

**MASSACHUSETTS MARITIME ACADEMY**  
**DEPARTMENT OF ENGINEERING**  
**EN-4112 – Thermo-Fluids Laboratory**  
**Syllabus and Lab Schedule**  
**Fall 2015**

**INSTRUCTOR:** Pedro O. López-Montesinos, Ph.D.  
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**OFFICE HOURS:** Monday (1-2PM), Thursday (11AM-noon), and Friday (1-2PM), 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:

- 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
- 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

**GRADING:** **This laboratory is an STCW knowledge course. A 70% or better overall grade is required to pass this course.**

The overall course grade consists of the following components:

- |                         |                |
|-------------------------|----------------|
| • Attendance / Clean-up | 10%            |
| • Quizzes               | 40%            |
| • Reports (2)           | 30% (15% each) |
| • Design Project        | 20%            |

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**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:** Weekly quizzes will be administered based on topics of the previous meeting's lab activities.

**REPORTS & PROJECT:** Students will be required to write two (2) technical reports describing laboratory experiments and findings. Students will also be required to write a project report summarizing the solution of a technical problem based on thermodynamics and fluid mechanics principles learned in the laboratory.

Each of these reports is to be done by the individual student. 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. Late submissions will not be accepted and a grade of 0 will be applied, no exceptions.

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

Students must bring the following to each lab meeting:

- Laptops, with power cords, and Excel spreadsheet software installed
- Lab notebooks (quizzes are open notes)
- Calculators
- Pens, pencils, straight edges for charts.
- USB sticks for file transfers

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. Students are not to leave the lab until their work area has been inspected by the instructor. Students leaving before their work areas have been inspected will lose attendance points for that day.

Data from lab activities will be collected in teams, but calculations are to be done by each individual student during the lab period.

Cell phones are to be stowed out of sight with ringers silenced. Cell phone calculators are not allowed for quizzes or other calculations.

All assignments are 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.

