

EML 4730L – MECHANICAL ENGINEERING LABORATORY  
Common Course Syllabus

Catalog Data: 3 Credits, Experimental work related to heat transfer, fluid mechanics, mechanical systems, materials and solid mechanics.

Course Objectives: This course is designed to have students perform laboratory experiments in various areas of mechanical engineering to reinforce concepts presented in the Department's core courses. Students will work with pre-arranged experiments and new experimental setups they design in the class. They will collect experimental results and analyze and interpret the data.

Prerequisites:

1. Experimental Methodology – EML 3523C

Typical experiments will include:

- Material testing
- Tensile and hardness testing
- Metallography
- Heat treatment
- Strength of materials measurements
- Dynamics and vibration
- Control of mechanical and thermal systems
- Linear momentum principle in fluid mechanics
- Pipe flow measurements
- Heat transfer measurements
- Turbomachinery systems measurements

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)

1. Students will be able to properly compose a technical report. (3)
2. Students will be able to conduct experiments in the areas of the Mechanical Engineering curriculum and analyze and report the results appropriately. (1,2,3,6)

Course Schedule:

2 hour of lecture and 3 hours of laboratory each week.

Formal student reports are required.

There will be at least one experimental system design.

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