EML 4127 – APPLIED THERMAL-FLUID ENGINEERING
Common Course Syllabus

Catalog Data: 3 CREDITS, Applications of fluid mechanics and heat transfer, including: turbomachinery, heat exchangers, condensation and boiling heat transfer, special topics in fluid mechanics, heat transfer, and design projects.

Goals: The goal is to introduce students to practical applications to systems involving fluid mechanics and heat transfer.

Prerequisite: Heat Transfer - EML 4142

Topics: (the number of lectures are guidelines and are subject to change by the instructor)
1. Review of Fluid Mechanics (4 classes)
2. Multiple-Pipe Systems, Hardy Cross Method (5 classes)
3. One-Dimensional Compressible Flow (9 classes)
4. Turbomachinery (9 classes)
5. Design Projects (6 classes)
6. Review of Heat Transfer (1 class)
7. Special Topics (8 classes)

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)
1. The student will be able to show how the principles of fluid mechanics and heat transfer can be applied to the solution of practical engineering problems. (7)
2. The student will understand the performance characteristics of turbo-machinery devices such as centrifugal pumps. (1)
3. The student will have a good understanding of compressible flow through converging and diverging nozzles. (1)
4. Students will demonstrate their creative ability to incorporate the principles of fluid mechanics and heat transfer in engineering designs. (2)
5. Students will demonstrate their ability to communicate in engineering designs. (3)

Design Content:
This course has two formal design projects. At least 33% of the course grade will be determined by design projects.

Laboratory Content:
This course has no formal laboratory sessions.

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