

MECHANICAL ENGINEERING PROGRAM
ABET COURSE SYLLABUS

ME 459/ME 460 HVAC System Design (3 Units/2 Units) Required for HVAC Concentration

Course Description: (2013-15 Catalog) ME 459: First quarter of a two quarter sequence. Team project work in designing heating, ventilating and air-conditioning (HVAC) systems. New developments, policies and practices in the HVAC industry. Professional ethics relevant for practicing engineers. 1 lecture, 2 laboratories.

ME 460: Continuation of work begun in ME 459. Team project designing heating, ventilating and air-conditioning (HVAC) systems. 2 laboratories.

Prerequisite Courses: ME 456, ME 458 or consent of instructor

Prerequisites by Topic: Building load calculations and the design of basic HVAC systems, including equipment selection, ducting and piping system design, etc.

Textbook: (and/or other required material) None required

References: ASHRAE Fundamentals Handbook, American Society of Heating, Refrigerating and Air-Conditioning Engineers, 2013.

Course Coordinator/Instructor: Jesse Maddren, Professor of ME

- Course Learning Outcomes:**
1. Develop, analyze and maintain an engineering project schedule.
 2. Work effectively on an engineering team.
 3. Evaluate potential design solutions through the use of engineering and physical science analysis techniques and tools.
 4. Communicate and present engineering design project results.
 5. Students will improve their ability to discuss and take a stand on open-ended topics involving engineering ethics.
 6. Understand the codes of ethics and their implications in engineering practice.

Relationship of Course to MECHANICAL ENGINEERING Program Outcomes:												
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>
H	L	H	L	H	H	H	M	M	M	H	H	M

Topics Covered:
(recommended number of hours each)

1. Introduction (1 lecture)
2. Microsoft Project overview (1 lecture)
3. Video: "Incident at Morales", ethics discussion (2 lectures)
4. Student ethics presentations (4 lectures)

Laboratory Projects: The primarily laboratory activity is the design of a system related to the HVAC field. The project scope varies. The deliverables could be a set of plans and specifications or a built and tested device or system. The scope of the project is determined by the instructor.

Weekly team meetings with laboratory advisor (approx. one hour each week per team).

Class/Lab Schedule: ME 459: One 50-minute lecture per week, two 170-minute labs per week.
ME 460: Two 170-minute labs per week.

Contribution of Course to Meeting the Professional Component:

(a) College-level mathematics and basic sciences:	0 credits
(b) Engineering Topics:	5 credits
Design	4 credits
(c) General Education:	0 credits
(d) Other:	0 credits

Prepared by: Jesse Maddren **Date:** 4/4/14