Course Syllabus

Course: ME 42100 - Heating and Air Conditioning I

Type of Course: Elective for ME program


Credits: 3

Contact Hours: 3

Prerequisite Courses: ME 32100

Corequisite Courses: None

Prerequisites by Topics: Heat Transfer


Course Objectives: To review the principles of thermodynamics, fluid mechanics, and heat transfer as they apply to the thermal conditioning of spaces and to give students a general introduction to the principles of HVAC design and analysis.

Course Outcomes: Students who successfully complete this course will have demonstrated an ability to:
1. Perform heating load calculations. (a, e)
2. Perform cooling load calculations. (a, e)
3. Size and design duct and pipe distribution systems. (a, c, e)
4. Apply the knowledge gained in items 1-3 to a real-life structure, such as an office building or residence and communicate the results. (c, e, g, k)
5. Learn about new and current technology in the field of heating and air conditioning and report finding. (g, i)

Lecture Topics: 1. Introduction, systems, costs
2. Thermodynamics/heat transfer review
3. Psychrometrics
4. Design conditions/comfort and health
5. Heating/cooling loads
6. Energy usage and calculations
7. Ducts and pipes
8. Air and water systems
9. Paper presentations

Computer Usage  Medium
Laboratory Experience  None
Design Experience  Medium
Coordinator  Donald Mueller, Ph.D., P.E.
Date  26 March 2011