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

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<thead>
<tr>
<th>Computer Usage</th>
<th>Medium</th>
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<tbody>
<tr>
<td>Laboratory Experience</td>
<td>None</td>
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<tr>
<td>Design Experience</td>
<td>Medium</td>
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<tr>
<td>Coordinator</td>
<td>Donald Mueller, Ph.D., P.E.</td>
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