CME 322 Chemical Engineering Heat and Mass Transfer

Credits and Contact Hours: 3 credits; 2 hours and 40 minutes

Course Instructor: Dr. Thomas A. Butcher

Text(s): Unit Operations of Chemical Engineering, McCabe, W.L., Smith J.C., and Harriott, P. 2005, 7th Edition

Specific course information


b. CME 318; CME 304; minimum of B- in CME 304

c. This is a required course for the CME program.

Specific goals for the course:
The students will have the foundation necessary to enter graduate programs including heat and mass transfer and have the basic skills to work in the area of heat and mass transfer equipment design.

b. Criterion 3 a-k: Outcomes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>% contribution</th>
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<tbody>
<tr>
<td>a. Ability to apply knowledge of math, engineering, and science</td>
<td>20%</td>
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<tr>
<td>b1. Ability to design and conduct experiments</td>
<td>15%</td>
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<tr>
<td>b2. Ability to analyze and interpret data</td>
<td>15%</td>
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<tr>
<td>c. Ability to design system, component or process to meet needs</td>
<td>10%</td>
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<td>d. Ability to function on multi-disciplinary teams</td>
<td>10%</td>
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<td>e. Ability to identify, formulate, and solve engineering problems</td>
<td>15%</td>
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<tr>
<td>k. Ability to use techniques, skills, and tools in engineering practice</td>
<td>15%</td>
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<tr>
<td>Any other outcomes and assessments?</td>
<td>100%</td>
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Any other outcomes and assessments?

Brief list of topics to be covered (including exams/quizzes):

Week 1: Introduction / Conduction Heat Transfer
Week 2: Conduction Heat Transfer
Week 3: Introduction to Heat Exchangers
Week 4: Convection without Phase Change
Week 5: Convection without Phase Change
Week 6: Convection with Phase Change
Week 7: Radiation
Week 8: Radiation
Week 9: Heat Exchanger Design
Week 10: Fundamentals of Mass Transfer
Week 11: Gas Absorption
Week 12: Gas Absorption
Week 13: Equilibrium Stage Operations
Week 14: Distillation
Week 15: Distillation