

August

ChBE 306

| <i>Sun</i> | <i>Mon</i> | <i>Tue</i> | <i>Wed</i> | <i>Thu</i> | <i>Fri</i> | <i>Sat</i> |
|------------|--|------------|---|------------|---|------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 CLASSES BEGIN Introductory Material: Heat Xfer Modes | 19 | 20 Ch 1.1-6; 2.1-4 Conservation of Energy, Heat Conduction, 1-D Steady State Material Properties | 21 |
| 22 | 23 2.3-4; 3.1-3 Steady State Heat Conduction Plane Walls; | 24 | 25 3.3; 3.7 1-D Steady State Conduction Composite Materials Thermal Resistance | 26 | 27 Ch 3 Radial & Spherical Systems 1D Steady State Heat Conduction | 28 |
| 29 | 30 Ch 4.1-5 2D Heat Conduction; Finite Difference Method using Nodes for 2-D SS Heat Conduction | 31 | | | | |

2010

September

ChBE 306

| <i>Sun</i> | <i>Mon</i> | <i>Tue</i> | <i>Wed</i> | <i>Thu</i> | <i>Fri</i> | <i>Sat</i> |
|------------|---|------------|---|------------|--|------------|
| | | | 1 Ch 4.4 2-D SS Finite Difference Method (Example) | 2 | 3 Ch 4.4; Ch 5.1-5 Transient (Unsteady State) Conduction Lumped Capacitance, The Biot Number | 4 |
| 5 | 6 NO CLASS LABOR DAY | 7 | 8 Ch 5 Unsteady State Conduction Example Problem | 9 | 10 Ch 5.6,7 Radial Transient Heat Transfer Semi-Infinite Solids | 11 |
| 12 | 13 Review for Exam 1 | 14 | 15 EXAM #1: HEAT CONDUCTION (Ch 1-5) | 16 | 17 Ch 6.1,2,7 Introduction to Convection Laminar and Turbulent Flow | 18 |
| 19 | 20 Ch 6 Correlation btwn Fluid Flow and Heat Transfer; Dimensionless #s | 21 | 22 Ch 7.1 Forced Convection External flow over bodies | 23 | 24 Ch 7.2-4 Forced Convection for Flat Plate and Cylinder Geometries | 25 |
| 26 | 27 Ch 7.6, 7.8 Forced Convection for Flow over Tube Banks and Packed Beds | 28 | 29 Ch 7 wrap-up; Introduce Ch 8 | 30 | | |

2010

October

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| <i>Sun</i> | <i>Mon</i> | <i>Tue</i> | <i>Wed</i> | <i>Thu</i> | <i>Fri</i> | <i>Sat</i> |
|------------|--|------------|--|------------|--|------------|
| | | | | | 1 Ch 8.1 Forced Convection for Internal Flow through ducts and tubes | 2 |
| 3 | 4 Ch 8.2-3 Mean Temperatures Energy Balances for Flow in Tubes | 5 | 6 Ch 8.4-7 Laminar & Turbulent Flow Correlations for Forced Convection; Annular Flow | 7 | 8 Ch 8 Laminar & Turbulent Flow Correlations Example Problems | 9 |
| 10 | 11 Ch 6-8 Review of Forced Convection | 12 | 13 EXAM #2 (Ch 6-8) | 14 | 15 Ch 9.1-5 Free Convection (thermally-induced flow) | 16 |
| 17 | 18 Ch 9.6-8 Empirical Correlations for Free Convection Heat Transfer; Geometry Dependence on Free Convection | 19 | 20 Ch 10.1-4 Phase Change in Heat Transfer; Boiling Regimes | 21 | 22 Ch 10.5-8 Forced Convection Boiling Film Condensation | 23 |
| 24 | 25 Ch 10 Examples of Boiling and Condensation | 26 | 27 Ch 11.1-3 Heat Exchangers- Concentric Tube, LMTD Method | 28 | 29 FALL BREAK (part 1) NO CLASS | 30 |
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2010

November

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| <i>Sun</i> | <i>Mon</i> | <i>Tue</i> | <i>Wed</i> | <i>Thu</i> | <i>Fri</i> | <i>Sat</i> |
|------------|--|------------|--|--|---|------------|
| | 1 Ch 11.2-3 Energy Balance in Heat Exchangers Parallel vs. Counter Flow | 2 | 3 Ch 11 Heat Exch Design; Shell & Tube TEAM PROJECT ASSIGNMENT | 4 | 5 Ch 11: Heat Exchanger Analysis | 6 |
| 7 | 8 Ch 11.4 Effectiveness-NTU Method | 9 | 10 Ch 11.1-5 Heat Exchangers: Retrofit, Performance, Fouling, etc. | 11 | 12 Handouts: Introduction to Evaporators, basic calculations and considerations Single vs. Double Effect Evaporators | 13 |
| 14 | 15 Review for Exam Questions on TEAM assignment | 16 | 17 EXAM #3 (Ch 9-11, Evaporators) | 18 FALL BREAK (part 2) | 19 Ch 12.1-2 Intro to Radiation Basic Concepts & Variables HEAT EXCHANGER TEAM PROJECTS DUE | 20 |
| 21 | 22 Ch 12-13; 12.3-7 Blackbodies, Radiative Emission and Absorption; Kirchhoff's Law; Gray Surfaces; Radiation Between Surfaces | 23 | 24 NO CLASS | 25 THANKS- GIVING | 26 NO CLASS | 27 |
| 28 | 29 Ch 12/13 Radiation; Bio-Heat Transfer Review of Problem Solving Skills | 30 | | | | |

2010

December

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| <i>Sun</i> | <i>Mon</i> | <i>Tue</i> | <i>Wed</i> | <i>Thu</i> | <i>Fri</i> | <i>Sat</i> |
|------------|------------|---|---|------------|--|------------|
| | | | 1 Problem Solving Rubric In-Class Exercise (REQUIRED 6th Quiz) | 2 | 3 Semester Review CLASSES END | 4 |
| 5 | 6 | 7 Final Exam 8:00 - 10:30 AM | 8 | 9 | 10 | 11 |
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2010