ChE 611 – Powder Technology – Syllabus Spring 2006

ChE 611
Fall 2007

Powder Technology (3 credit hours)

Instructor:

Richard Turton
433 Engineering Sciences Building
Tel: 293-2111, ext. 2415
Email: Richard.turton@mail.wvu.edu

Schedule:

M and W 3:00 pm – 5:00 pm, 449 Engineering Sciences Building

Course Objectives:

1. Students will become familiar with the different methods to characterize, measure, and compare distributions of powders.

2. Students will be able to recognize and quantify the forces between particles for a variety of situations.

3. Students will be familiar with various unit operations used to process powders and particles, e.g., mixing, agglomeration, filtration, etc.

4. Students will have developed an appreciation for the complexity of powder processing and developed the skills necessary to design equipment used to process powders and particles.

Required Text:

A set of printed course notes will be available – a nominal charge for these notes will be made.

Related and Recommended Texts:


Course Policies (exceptions at discretion of Instructor):

1. There are no make-up exams.
2. All problem sets are due at the beginning of class or at the stated time.
3. A late assignment = no assignment.
4. Exam grading appeals must be submitted in writing on the day the exam is returned. If you miss that class, you lose the opportunity for regrading.
5. Class attendance is strongly recommended but not required.

Grade Scale:

The nominal grading scale is

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>≥90%</td>
<td>A</td>
</tr>
<tr>
<td>≥80%</td>
<td>B</td>
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<tr>
<td>≥70%</td>
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<td>&lt;70%</td>
<td>F</td>
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Grading:

<table>
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<th>Component</th>
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<tbody>
<tr>
<td>Mid-Term Exam</td>
<td>40%</td>
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<tr>
<td>Final Exam</td>
<td>40%</td>
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<tr>
<td>Problem Sets</td>
<td>20%</td>
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<tr>
<td>Total</td>
<td><strong>100%</strong></td>
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# Tentative Syllabus

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<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>8/20</td>
<td>Particle size and shape measurement</td>
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<tr>
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<td>8/22</td>
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<td>2</td>
<td>8/27</td>
<td>Particle size characterization and size distributions</td>
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<td>3</td>
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<td>9/05</td>
<td>Packing of powders</td>
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<td>9/12</td>
<td>Single particle behavior in fluids</td>
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<td>5</td>
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<td>Behavior of powders in packed beds</td>
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<td>6</td>
<td>9/24</td>
<td>Behavior of powders in fluidized beds</td>
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<td>9/26</td>
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<tr>
<td>7</td>
<td>10/01</td>
<td>Powder statics and the design of hoppers</td>
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<td>Inter-particle forces and tribology in particulate systems</td>
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<td>10</td>
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**Final Exam Wednesday 12/12 at 11:00-13:00**