CM1000 – Introduction to Chemical Engineering  
Michigan Technological University  
Fall Semester 2018

**Class Schedule:** Th 11:05 -11:55 am, Minerals and Materials Eng. Bldg. U115

**Prerequisites:** None

**Description:** This course introduces the students to a variety of career options with a chemical engineering degree. In addition to introducing the students to a brief history of chemical engineering and its role in major discoveries of the 20th century, the course will cover some essential concepts of chemical engineering curriculum such as process flow diagrams, unit operations, role of basic sciences (chemistry, biology, and physics) and mathematics in the development and design of production processes. Several professional development topics will also be introduced including resume preparation, preparing for job interviews, ethics and safety, literature search, preparing and making Power Point presentations, and working in teams etc.

**Learning Objectives:** This 1-credit course is intended to introduce students to the basic underpinnings of the chemical engineering profession. The students will be able to understand and engage in the following:

- Explain the role of chemical engineer in a variety of industries, including chemical, petrochemical, polymers, consumer products, pharmaceuticals, semiconductors, materials, pulp & paper, textiles, and mineral processing
- Prepare for a job interview by making a resume and learn the interview skills
- Apply the methods of literature search
- Make PowerPoint presentations
- Draw process flow diagrams
- Develop non-technical professional skills appropriate for an engineer

**Topics Covered:** Successful students will become familiar with the following:

- Career options
- Preparing resumes
- Preparing for a job interview
- Conducting literature search
- Process flow charts
- Making PowerPoint presentation
- Teamwork, ethics, and Safety

**Instructor:** Dr. Pradeep K. Agrawal, Room 203B, (906) 487-1870, pkagrawa@mtu.edu
Office Hours: Thursday 4:00-5:00 pm

Grading: 
- HW #1 - Resume Preparation 20%
- HW#2 - Researching a chemical process and making an oral presentation 40%
- HW#3 - Career Fair and AIChE meetings 20%
- Class Attendance/Participation 20%

Scale: 
- A = 90-100, AB = 87-89, B = 80-86, BC = 77-79
- C = 70-76, CD = 67-69, D = 60-66, F = <60

Submissions: HW assignments must be turned in the class when due

Conflicts: Advance notice (1 week minimum), and a University approved reason are required to be excused from a HW assignment due date (i.e., speak with the Instructor if you need to).

Expectations: Professionalism requires regular class attendance, participation, and ethical behavior.

University Policies: Student work products (e.g., homework, projects, etc.) may be used for purposes of university, program, or course assessment. All work used for assessment purposes will not include any individual student identification.

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Affirmative Action http://www.admin.mtu.edu/aa/
Disability Services http://www.mtu.edu/dean/disability/policies/
COURSE CALENDAR

NOTE: Career Fair is Wednesday, October 3, 2018

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<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>September 6, 2018</td>
<td>Career Pathways for Chemical Engineers</td>
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<td>2</td>
<td>September 13, 2018</td>
<td>Resume Writing Tips – looking for a job- Career Services</td>
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<td>3</td>
<td>September 20, 2018</td>
<td>Resume Critique- interviewing skills (student panel)</td>
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<td>4</td>
<td>September 27, 2018</td>
<td>Literature search- end notes</td>
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<td>5</td>
<td>October 4, 2018</td>
<td>Advisement, curriculum, and course planning</td>
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<td>6</td>
<td>October 11, 2018</td>
<td>Process Technology and Process Flow Charts</td>
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<td>7</td>
<td>October 18, 2018</td>
<td>How to make a PowerPoint presentation</td>
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<td>8</td>
<td>October 25, 2018</td>
<td>Team work, Leadership, and Ethics</td>
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<td>9</td>
<td>November 1, 2018</td>
<td>Team Presentations-1</td>
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<td>10</td>
<td>November 8, 2018</td>
<td>Team Presentations-2</td>
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<td>November 15, 2018</td>
<td>Team Presentations-3</td>
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<td>Team Presentations-4</td>
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<td>13</td>
<td>December 6, 2018</td>
<td>History of Chem. Engg. –Major discoveries of 20th century</td>
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<td>14</td>
<td>December 13, 2018</td>
<td>Opportunities- CPM, AIChE, OXE, Research</td>
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Major 20th century chemical engineering discoveries:

Ammonia, Nylon, Kevlar, Lycra, semiconductors, materials, engineered plastics, food processing, biotechnology, penicillin, pharmaceuticals, drug delivery, energy, carbon sequestration, heart valves, consumer products etc