Class time
TTh 830A-9:45A, room A108

Instructor
Dr. Thomas Belval
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Learning Objectives for Students
The successful student will be able to.....

1. Apply the general framework for conceptual design to a novel problem (defining customer needs, developing specifications, generating plausible concepts, assessing financial sustainability, environmental sustainability, and risk for alternative concepts);

2. Perform as a member of a project team of students serving an industry client;

3. Communicate team progress and results through an oral presentation and written reports to the client;

Course flow
The class will form teams in accord with my requirements for team size, regular team meetings, etc.

Teams will study the Problem Statements submitted by industry clients, and bid for projects by ranking them in order of preference. I will use the rankings to run an algorithm to assign teams to projects.

Teams will apply the general design method from CHEN 4520 to their problem under the guidance of the client. Their project work will include:

1. Maintaining a Project Notebook;

2. Drafting a Project Plan that gives project steps, milestones, and individual team member responsibilities

3. Writing a Progress Report for the client midway through the semester;

4. Giving an in-class Oral Presentation of findings and recommendations to the client at the end of the semester;

5. Writing a Final Report of findings and recommendations to the client at the end of the semester;

I will be available every class period for teams to drop-in.
Teams will meet with their client by phone (using GoToMeeting software) or face-to-face approx. once a week (subject to the client’s availability) for approx. 1 hr to discuss their work.

I will assess the quality and depth of a team’s project work based on the project documents and the team oral presentation.

I will request feedback from clients on the conduct of the teams and the value of the team project.

I will do up to three peer reviews over the semester to assess the balance of effort across team members

**Grading basis**

- **A** = 90-100 % of possible course points
- **B** = 80-90 %
- **C** = 70-80 %
- **D** = 60-70 %

**Course points split**

<table>
<thead>
<tr>
<th>Assessed Item</th>
<th>Value (course points)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Project Plan</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Team Written Progress Report</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Team Oral Presentation in-class</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Attend in-class OP dates</td>
<td>5</td>
<td>An individual student item.</td>
</tr>
<tr>
<td>Team Final Written Report</td>
<td>45</td>
<td>A team item. To pass the course (grade of C-), team needs to get more than 70 % credit for this item.</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
<td></td>
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</tbody>
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**Peer Review**

The Peer Review is necessary to insure equity within teams, but teams should take responsibility for managing themselves. Have clear and respectful discussions about expectations within a team early on and maintain strong communication through the semester to head off issues. Decisions the team makes about work, schedules, responsibilities etc. should be by consensus except in rare instances.

There will be a peer review done in-class after the Project Plan, after the Progress Report, and after the Final Report. In a peer review, each team member will use a clicker to rate every team member including themselves. The scale is:

- **Clicker A** = 120
- **Clicker B** = 110
- **Clicker C** = par (i.e. 100)
- **Clicker D** = 90
- **Clicker E** = 80

For example, rating a team member at 110 means you judged they contributed 10 % more than the average contribution from team members, while a rating of 80 means you judged they
compute the student's score for that assignment, after removing outlier ratings:

\[(\text{team score for assignment} \times \text{average peer rating}/100) = \text{student score}\]

For example, if the team score for the assignment is 170 points out of 200, and the student average peer rating is 90, then the student points for that assignment is 170 x (90/100) = 153. In other words, that student's score for the assignment is only 76.5% of the possible points while the team average is 85% of possible points.

Course policies

Timeliness - No credit for late delivery of any items, except for extraordinary cases. If a true emergency forced your team to miss a deadline, then some adjustment may be possible.

- Choices you make are, by definition, not emergencies. For example, choosing to go on a trip or participate in some special activity.

- The best strategy is to submit, on time, what your team has done and move on.

Originality – All content in your assessed items should be your team’s work, except for information that comes from outside sources that you cite. If a team fails to properly attribute the work of others, it will get zero credit for that work item and the matter will be referred to the Dept. for possible further disciplinary action.

Resources and misc.

Custom CHEN 4530 website for accessing CU library databases from Dr. Rebecca Kuglitsch: [http://libguides.colorado.edu/c.php?q=440167&p=3000212](http://libguides.colorado.edu/c.php?q=440167&p=3000212). This website also contains info on Zotero, a citation management tool for written reports.

Website for CHEN 4530 industry clients: [http://www.colorado.edu/chbecapstonedesign/](http://www.colorado.edu/chbecapstonedesign/). This website explains the course to prospective clients and invites them to submit project ideas.

Desire2Learn

Textbooks from CHEN 4520

Supplemental books -


GoToMeeting software - for communication with clients. See [www.gotomeeting.com](http://www.gotomeeting.com) for info on using GTM. Do NOT change our class password for GTM.

Process simulation software – CU has licenses for HYSYS™, Visio™, ASPENPLUS™ and Super Pro Designer™

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1 Take care in giving extreme ratings, i.e. 80 or 120, as they can profoundly affect the score that the team member earns for the assignment.