Sample service-learning course syllabus

ENGR 1001 – Introduction to Engineering Design

Course Instructor: Dr. Edmund Tsang, C-250 CEAS
Email: edmund.tsang@wmich.edu
Phone: 269-276-3249
Office Hours: TR 2:30-3:30 PM; and MW 10:30-11:30 AM

Catalog Data: An introduction to engineering design process and the engineering and engineering technology disciplines. Topics include engineering design process, teamwork, written and oral communications, engineering ethics and impact of engineering solutions on society. Credit: 1 hr.

Meeting Time/Place: Section 43628 – Wednesdays from 11:30 a.m. to 2:00 p.m. in C-123, CEAS
Section 43629 - Fridays from 12:30 to 3:00 p.m. in C-141, CEAS


Reference Materials:
3. Course webpage: WMU WebCT/e-Learning on GoWMU

Course Materials/Supplies
1. Design/Lab notebook
2. Computer discs

Class Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading Assignment for next week</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>9/7</td>
<td>Course syllabus, policies, and class schedule Design Project: Need statement/background research Survey to form design teams</td>
<td>Ch. 1, 2, 3, 4, and particularly 11</td>
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<tr>
<td>2</td>
<td>9/14</td>
<td>MDOT briefing on SR2S – Darrell Harden Teamwork in engineering Brainstorming &amp; affinity process Successful team traits; potential teamwork problems &amp; solution</td>
<td>Ch. 13, 14</td>
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<tr>
<td>3</td>
<td>9/21</td>
<td>Introduction to Engineering Design Process and Design Specifications Introduction to oral engineering communication</td>
<td>“Specifications: Neighborhood Audit” &amp; “Specifications: School Property Assessment” from e-Learning</td>
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<td>4</td>
<td>9/28</td>
<td>Working and Communicating with Design Project Community Partners – Dr. Yvette Hyter, WMU Unified Clinic Review SRTS Specifications for Field Trip</td>
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<tr>
<td>5</td>
<td>10/5</td>
<td>Field Trip: Conduct school property assessment &amp; walking audit of neighborhood</td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Activity</td>
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<tr>
<td>6</td>
<td>10/12</td>
<td>Design Project Oral Progress Report #1: Present findings of school property assessment/walking audit</td>
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<td>Design Project: Brainstorm solution ideas</td>
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<td>7</td>
<td>10/19</td>
<td>Incorporating MDOT Standards in SRTS Design – John Polasek, P.E.</td>
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<td>8</td>
<td>10/26</td>
<td>Informal progress report on solution ideas to MDOT (Darrell Harden) for feedback How to improve oral communication Ch. 6</td>
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<tr>
<td>9</td>
<td>11/2</td>
<td>Design for the Environment &amp; Future Challenges Design Project: Draft engineering action plan Ch. 12</td>
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<td>10</td>
<td>11/9</td>
<td>Oral Progress Report #2: Draft engineering action plan</td>
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<td>Project Management Introduction to Microsoft Project – Dr. Pingbo Tang Ch. 15</td>
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<td>11</td>
<td>11/16</td>
<td>Introduction to Engineering Ethics Work on final draft of engineering action plan</td>
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<td>12</td>
<td>11/23</td>
<td>Thanksgiving Break</td>
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<td>13</td>
<td>11/30</td>
<td>Complete final draft of engineering action plan</td>
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<td>14</td>
<td>12/7</td>
<td>Final Exam: Turn in design project written report &amp; make final project oral presentation</td>
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**Course Objectives**

1. To develop skills in the engineering design process
2. To develop skills in teamwork
3. To develop written and oral communication skills
4. To develop professional behavior in the areas of punctuality, time management, meeting deadlines, and professional appearance appropriate of engineering professionals
5. To network with faculty and students of the College of Engineering and Applied Sciences, potential future employers, and other Western Michigan University support personnel
6. To have basic awareness of engineering codes of ethics and impact of engineering solutions on society

**Topics**

1. Teamwork in engineering
2. Communications (written, oral, visual)
3. Introduction to Engineering Design Process
4. Completion of a design project, including documentation
5. Basic awareness of engineering codes of ethics and impact of engineering solution on society
6. Time management/Study skills

**Computer Usage:** Use computers for reports, data presentation and visualization.
Grading:
1. Homework 30%
2. Design Project 50%
3. Attendance 5%
4. Participation/Teamwork 5%
5. Quiz 10%
Total 100%

Course Learning Outcomes
1. Students successfully demonstrate the engineering design process in completing a design project
2. Students demonstrate teamwork skills
3. Students demonstrate written and oral communication skills
4. Students demonstrate punctuality in attending class
5. Students meet all assignment deadlines
6. Students demonstrate time management skill in carrying out the design project
7. Students have networked with CEAS faculty and students, employers of engineers and engineering technologists, and other WMU support personnel
8. Students demonstrate basic awareness of engineering codes of ethics and impact of engineering solutions on environment

The course contributes to ABET-EAC Criterion 3 categories a, c, d, e, and g, and ABET-TAC Criterion 3 a, d, e f, and g.

ABET category content
Engineering Design 80%
Engineering Professionalism 20%

Course Policies
1. Attendance: Your presence in the classroom contributes to discussion and learning. You are required to attend classes and are allowed two (2) unexcused absence. Failure to meet the attendance policy will result in a score of “zero” in attendance grade. Request for excused absence must be accompanied by official letter of excuse, e.g., a letter from your physician if you are ill and unable to attend class, within one week of unexcused absence.
2. Punctuality: You are expected to attend classes punctually. If you are late by 5 minutes or more, you may be considered absent without an excuse. Please see the instructor immediately if you foresee any problem attending class on time.
3. Homework is due on the deadline specified in the assignment. Late homework will not be accepted.
4. Academic Honesty: You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate Catalog that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with the instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.
5. Special Needs: Any student with a documented disability who needs to arrange reasonable accommodations must contact Ms. Beth denHartigh at 387-2116 and/or at beth.dengartigh@wmich.edu at the beginning of the semester. This office must make a disability determination before the instructor provides any accommodations. Any student with a qualified need who wishes to use a tape recorder to tape class lectures or requires special accommodation
should meet with the instructor during first week of class to make the necessary arrangement to address the special need of the student.

6. There is a co-curricular component of course assignments that must be met. Failure to complete this component of the assignments will result in a grade of “Incomplete.” For more information about the co-curricular assignments, see document titled “Co-curricular Assignments.”

7. The only e-mail address that should be used for communication between WMU students and WMU faculty and staff is the e-mail address associated with a BroncoNet ID. This e-mail address typically takes the form firstname.middleinitial.lastname@wmich.edu. An example is buster.h.bronco@wmich.edu. Students cannot automatically forward e-mail from this address to other addresses. Students can access this email account or get instructions for obtaining a BroncoNet ID at GoWMU.wmich.edu.

8. WMU is a diverse, multicultural institution of higher learning and, as a community, we jointly embrace both individual responsibility and dignified respective for our faith and our differences. Therefore, students who must be absent from scheduled classes for religious observances must inform the instructor at least one week prior to the absence.

9. A laptop computer should only be used in class for the purpose of learning and not for non-academic uses such as checking e-mail, social networking sites, etc. The class will agree on a policy during the first day of class to address violation of laptop computer policy.

10. Cell phones should be turned off during class or set to vibrate mode. The class will agree on a policy during the first day of class to address violation of cell phone policy.