TUSKEGEE UNIVERSITY
COLLEGE OF ENGINEERING
CHEMICAL ENGINEERING DEPARTMENT

Second Semester
2019 - 2020

COURSE: CENG 490, Senior Design Project
COORDINATOR: Nader Vahdat
OFFICE: Room 513
TELEPHONE: 727-8978
FAX: 724-4940
E-MAIL: nvahdat@tuskegee.edu

TEXT: None

COURSE OBJECTIVES:
Students will:
1. Conduct a comprehensive literature survey on a chemical process
2. Design a complete chemical process and perform economic analysis of the process
3. Develop oral and written communication skills
4. Function on a team

COURSE OUTCOMES:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>1</th>
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<tbody>
<tr>
<td>Objective 1</td>
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<td>Objective 2</td>
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<td>Objective 3</td>
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<td>Objective 4</td>
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1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
PREREQUISITES: CENG 470
HOURS: W 2:00 – 5:00 p.m.
ATTENDANCE: 100% required
GRADING:
Weekly Progress Reports/Oral Presentation 40%
Final Report 40%
Final Oral Presentation 20%

A = 90 - 100
B = 80 - 89
C = 70 - 79
D = 60 - 69
F = 0 - 59

POLICIES:
• Brief typewritten progress reports are submitted to the instructors every week, and short presentations on weekly progress reports are given to the class.
• The final oral presentations will be scheduled for the week before the final semester examination period. A typewritten final report should be ready for the week before the final semester examination period.
• Weekly progress reports as well as a final report should be written with a PC-computer word processor.
• Effective Spring 2012, the Gmail mytu.tuskegee.edu Email system at Tuskegee University is REQUIRED for ALL Instructional Administrators, Faculty, Staff and Students.
• Effective Spring 2012 ALL Instructional Administrators, Faculty, Staff and Students are REQUIRED to use Blackboard and STARFISH.

REFERENCES:


**Web sites**

<table>
<thead>
<tr>
<th>Link</th>
<th>MSDS’s</th>
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<tbody>
<tr>
<td>gopher://atlas.chem.utah.edu/11/MSDS</td>
<td>MSDS’s</td>
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<tr>
<td><a href="http://www-portfolio.stanford.edu/no-form/100369/5">http://www-portfolio.stanford.edu/no-form/100369/5</a></td>
<td>Hazardous properties of material: physical hazard, such as flammability and corrosivity; toxic effects such as carcinogenicity, toxicity and target organ information; and regulatory listing requirements.</td>
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<td><a href="Http://haz1.siri.org/">Http://haz1.siri.org/</a></td>
<td>MSDS’s</td>
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<tr>
<td><a href="http://ghg.ecn.purdue.edu/">http://ghg.ecn.purdue.edu/</a></td>
<td>George Glob - Purdue LOX to ignite charcoal</td>
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<tr>
<td><a href="http://www.lanl.gov/Internal/organization/dx/DX2/dx2home.html">http://www.lanl.gov/Internal/organization/dx/DX2/dx2home.html</a></td>
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Chemical Engineering Department
Tuskegee University

Oral Presentation Evaluation
Second semester 2019-2020

Your Name: ______________

Course Number: CENG 490       Date: 

<table>
<thead>
<tr>
<th>Name of student</th>
<th>Organization</th>
<th>Subject Knowledge</th>
<th>Graphics</th>
<th>Mechanics</th>
<th>Eye Contact</th>
<th>Elocution</th>
<th>Total Score</th>
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<tr>
<td><strong>Organization</strong></td>
<td>Audience cannot understand presentation because there is no sequence of information.</td>
<td>Audience has difficulty following presentation because student jumps around.</td>
<td>Student presents information in logical sequence which audience can follow.</td>
<td>Student presents information in logical, interesting sequence which audience can follow.</td>
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<tr>
<td><strong>Subject Knowledge</strong></td>
<td>Student does not have grasp of information; student cannot answer questions about subject.</td>
<td>Student is uncomfortable with information and is able to answer only rudimentary questions.</td>
<td>Student is at ease with expected answers to all questions, but fails to elaborate.</td>
<td>Student demonstrates full knowledge (more than required) by answering all class questions with explanations and elaboration.</td>
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<tr>
<td><strong>Graphics</strong></td>
<td>Student uses superfluous graphics or no graphics</td>
<td>Student occasionally uses graphics that rarely support text and presentation.</td>
<td>Student's graphics relate to text and presentation.</td>
<td>Student's graphics explain and reinforce screen text and presentation.</td>
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<tr>
<td><strong>Mechanics</strong></td>
<td>Student's presentation has four or more spelling errors and/or grammatical errors.</td>
<td>Presentation has three misspellings and/or grammatical errors.</td>
<td>Presentation has no more than two misspellings and/or grammatical errors.</td>
<td>Presentation has no misspellings or grammatical errors.</td>
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<tr>
<td><strong>Eye Contact</strong></td>
<td>Student reads all of report with no eye contact.</td>
<td>Student occasionally uses eye contact, but still reads most of report.</td>
<td>Student maintains eye contact most of the time but frequently returns to notes.</td>
<td>Student maintains eye contact with audience, seldom returning to notes.</td>
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<td><strong>Elocution</strong></td>
<td>Student mumbles, incorrectly pronounces terms, and speaks too quietly for students in the back of class to hear.</td>
<td>Student's voice is low. Student incorrectly pronounces terms. Audience members have difficulty hearing presentation.</td>
<td>Student's voice is clear. Student pronounces most words correctly. Most audience members can hear presentation.</td>
<td>Student uses a clear voice and correct, precise pronunciation of terms so that all audience members can hear presentation.</td>
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</tbody>
</table>
Progress Reports

1. Summary 10
2. Introduction 5
3. Theory 5
4. Hazard control & analysis 10
5. Results 10
6. Discussion 10
7. Conclusion 10
8. Design calculations 40

100
# Senior Design projects
## Second Semester 20190 – 2020

<table>
<thead>
<tr>
<th>Project</th>
<th>Students</th>
<th>Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary design and evaluation of an ethanol production facility utilizing sugar cane molasses</td>
<td>1. 2. 3.</td>
<td>Kwon</td>
</tr>
<tr>
<td>Production of methanol by a new process utilizing methyl formate as an intermediate</td>
<td>1. 2. 3.</td>
<td>Vahdat</td>
</tr>
<tr>
<td>Economic Appraisal of Nitrogen Products Plant</td>
<td>1. 2.</td>
<td>Kwon</td>
</tr>
<tr>
<td>Butadiene Sulfur Unit Design</td>
<td>1. 2.</td>
<td>Kwon</td>
</tr>
<tr>
<td>Production of Crude Acrylic Acid from propylene</td>
<td>1. 2. 3.</td>
<td>Vahdat</td>
</tr>
</tbody>
</table>