The Engineering Technology Department, in cooperation with the Office of Disability Accommodation, complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request to the instructor prior to the fourth day.

SAFETY CATEGORY: 1
DATE PREPARED: January, 2014
PREPARED BY: Elias Kougianos

COURSE NUMBER, TITLE, CREDIT HOURS:
ELET 4790. Senior Design II; 2 credit hours.

DESCRIPTION:
Implement, test and demonstrate a product or process. Oral and written documentation required. Projects to be supplied by local industry whenever possible.

PREREQUISITES:
ELET 4720, ELET 4770 and ELET 4780.

REQUIRED TEXTBOOKS:
No Required Text

SUPPLEMENTAL TEXTS AND MATERIALS:
Use of all texts and material from prior ETEC, technical writing and presentations courses.

COURSE OBJECTIVES: ABET/IEEE Program Outcomes and Program Educational Objectives supported.
1. Understand the product development cycle from initial design to a test model as used in an industrial setting. (a, b, f, k)
2. Appreciate team effort in product development. (c, e, g, i)
3. Prepare a formal technical document covering the actual design. (b, c, f, g)
4. Learn the process of utilizing catalogs, specification sheets and vendor documents in the final design process. (a, c, f)
5. Appreciate the requirements and techniques of an oral presentation covering a group effort. (g, j)
6. Appreciate the free market system. (g, h, i, j, k)

STUDENT LEARNING OUTCOMES: (Course Objectives Supported)
At the conclusion of this course student will be able to:
a) Prepare a formal project report in response to either an RFP or a group-initiated concept. (3, 4)
b) Design the concept using appropriate electrical and mechanical principles. (1, 2, 4)
c) Apply the breath of the major engineering technology courses to the completion of the final design model. (1, 4)
d) Present an oral report on the design and its applications. (4, 5)
e) Write a formal report on the project. (3, 4)
f) Work in a small group design environment. (2, 5, 6)
g) Develop and prepare a working model with a marketing plan (1, 2, 4).
INSTRUCTIONAL OBJECTIVES
This is a design course whereby the students are placed in a simulated industrial environment. Divided into teams they are responsible for designing a project, fabricating and testing a final working model. They must submit weekly progress reports, a project proposal and an initial design, all of which must be approved by the instructor who functions as a CEO. The course meets formally once each week for lecture/discussion. Lab time is used for creating a hardware model from an initial visual concept. Lectures and discussions will include: job searching, career paths, and graduate school.

LEARNING STRATEGIES:
Class members will be divided into companies of normally up to 4 students. Each company is assigned to the course instructor who will function as Chief Engineer. The company will be responsible for:
- Development of an initial concept
- Fabricating a working model.
- Preparation of a cost analysis
- Development of a market plan – or Response to a specific RFP.
- Preparation and updating of a weekly time schedule
- Mid-semester oral update reports on the project status.
- Weekly logs (written progress reports)
- Mandatory attendance at weekly lectures and company progress sessions.
- Preparation of a formal written report covering the design, development and fabrication of the semester project.
- Formal oral presentation by all members of the company on the semester project.
- Submission of an engineering journal documenting lessons learned throughout the project.

COURSE OUTLINE:
1. Follow-up to initial design
2. Continuation of design activities
3. Mid-term presentation
4. Final presentation to faculty
5. Project demonstration
6. Final project presentation and demo to invited personnel

Major Milestones for Senior Design:

Oral Presentation 1  Monday, February 10 2014
Oral Presentation 2  Monday, March 24 2014
Formal Oral Presentation (Design Day)  Friday, April 25 2014
LABORATORY OUTLINE:

The lab will be utilized for a weekly status meeting with the instructor. Each company will be responsible for arranging a 20-minute time slot for the weekly meeting – same time each week. The remainder of lab time is available for students to design, fabricate and test their product.

COMPUTER USAGE:

Student will be required to utilize software packages from their preceding courses in the completion of their project, e.g. Microsoft Project, Word, Excel, MatLab, etc.

ORAL COMMUNICATION USAGE:

See Learning Strategies

COURSE EVALUATION:

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.
## PRESENTATION GRADING GUIDE:

**PRESENTER NAME** _______________  **COURSE NAME** _______________

**SEMESTER** ______  **PROJECT TITLE** ____________________________________________

<table>
<thead>
<tr>
<th>EVALUATION TOPIC</th>
<th>POSSIBLE POINTS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject Introduction</td>
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<tr>
<td>2. Organization of Topics</td>
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<tr>
<td>3. Clear Descriptions</td>
<td>0 1 2 3</td>
<td></td>
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<tr>
<td>4. Emphasized Pertinent Information</td>
<td>0 1 2</td>
<td></td>
</tr>
<tr>
<td>5. Quality and Effective Use of Visual Aids</td>
<td>0 1 2 3</td>
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<td>6. Effective Conclusion</td>
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<tr>
<td>7. Composure and Speaking</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>8. Effective Demonstration with a working model</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td>9. Project Technical Content</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td>10. Subjective Evaluation</td>
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</tr>
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</table>

**Composite Score**  __________

**EVALUATOR COMMENTS** _______________________________________________

_____________________________________________________________________
_____________________________________________________________________
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WRITTEN COMMUNICATION USAGE:

See Learning Strategies
### WRITTEN GRADING GUIDE:

**NAME** ____________________________ **COURSE NAME** ___________________

**REPORT DATE** ______  **DUE DATE** _______  **LABORATORY NUMBER** ______

**LABORATORY TITLE** ___________________________________________________

<table>
<thead>
<tr>
<th>EVALUATION TOPIC</th>
<th>POSSIBLE POINTS</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td>1. Objective</td>
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<tr>
<td>2. Diagrams</td>
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</tr>
<tr>
<td>3. Expected Results</td>
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<td></td>
</tr>
<tr>
<td>4. Original Data Sheets</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>5. Analysis of Results</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>6. Conclusions</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>7. Supportive Data</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>8. Comments</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>9. Professionalism signature</td>
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</tbody>
</table>

**Composite Score**  __________

Professionalism Signature (TA verifies the student preformed the experiment, that the position computer is logged of and position is clean.):

___________________________________  Date Completed:____________________

**EVALUATOR COMMENTS** ____________________________________________

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

*Page 7*
LIBRARY USAGE:
See Learning Strategies

GRADING ELEMENTS AND WEIGHTS:

<table>
<thead>
<tr>
<th>Item</th>
<th>Individual(s) Responsible</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal Written Reports</td>
<td>CEO with input form Chief Engineer</td>
<td>30%</td>
</tr>
<tr>
<td>Proposal – (Prepared as part of ELET 4780)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Design – (Prepared as part of ELET 4780)</td>
<td></td>
<td></td>
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<tr>
<td>Formal final Report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral Presentations</td>
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<td>30%</td>
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<tr>
<td>Mid term</td>
<td>CEO</td>
<td></td>
</tr>
<tr>
<td>Formal Final</td>
<td>CEO with input from Chief Engineer &amp; Evaluators</td>
<td></td>
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<tr>
<td>Final Working Model</td>
<td>Chief Engineers</td>
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</tr>
<tr>
<td>Weekly Progress Reports</td>
<td>Chief Engineers &amp; CEO</td>
<td>5%</td>
</tr>
<tr>
<td>Engineering Journal</td>
<td>Chief Engineers &amp; CEO</td>
<td>5%</td>
</tr>
<tr>
<td>Class Attendance &amp; Participation</td>
<td>CEO (Input from Chief Engineers)</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

GRADING POLICIES:
See Grading Elements

CLASS POLICIES:

1. All rules relating to academic dishonesty will be enforced in accordance with University policies. Cheating on quizzes, examinations and laboratory assignments, and plagiarism on various papers and reports are types of disciplinary misconduct for
which penalties are assessed under the UNT Code of Student Conduct and Discipline. Major responsibility for implementing the University's policy on scholastic dishonesty rests with the faculty. Be advised that the instructor of this course supports and fully implements this policy. The following actions will be taken when evidence of such misconduct is observed. The student will be presented with the evidence of misconduct and given an opportunity to explain same. Based on the outcome of this private conference, the matter will be either dropped or the student will be given a grade of "F" in the course and be referred to the Dean of Students for further counseling and/or disciplinary action.

2. State common law and federal copyright laws protect my lectures. They are my own original expression and I record them at the same time that I deliver them in order to secure protection. Whereas you are authorized to take notes in class thereby creating a derivative work from my lecture, the authorization extends only to making one set of notes for your own personal use and no other use. You are not authorized to record my lectures, to provide your notes to anyone else or to make any commercial use of them without expressed prior permission from me.

3. During the course, handouts will be provided to enhance the presentation of certain concepts. These materials are provided strictly for instructional purposes and may otherwise be restricted. There is no authorization for further reproduction of distribution of handout materials beyond that intended to teach the course.

4. This syllabus is subject to change at any time during the semester with changes to be announced in class.

5. Students should schedule at least one hour per lecture hour for study outside class. Students should schedule at least one hour per laboratory hour for outside work to prepare for the laboratory, use of open laboratory hours, and to complete the required laboratory documentation.

6. Grades are based, in part, on the student's ability to communicate. Well written English is expected in all course work and is a factor in laboratory report grades. The student’s ability to orally communicate the results of laboratory exercises and class assignments is also monitored.

7. Each student should retain graded lecture notes, pop quizzes, homework, tests, software-generated files, and laboratory reports to document errors in recorded grades.

8. Requests for review of graded work must be submitted during the lecture in which such work is returned to the students. The request should be accompanied by a written justification of the request including any supporting data.

9. The UNT Catalog procedures on cheating and plagiarism will be vigorously enforced. It is the duty of all students to protect their work so it is not available to others for
submission as their efforts. This is especially true of files that are generated on the computer. Students who knowingly allow others to use their work are partners in this unethical behavior.

10. There is no limit to the use of calculators for lecture, labs, pop quizzes, formal tests, or final examination.

11. Challenges to the course grade must be presented within 60 days of receipt of grade notices mailed by the university. This will insure that instructor’s records are still available to allow a review of the assigned grade. You should first discuss your complaint with the instructor. If you wish to carry it further, contact the Program Coordinator by calling (940) 565-2022. To further pursue your complaint, contact the Department Chair at (940) 565-2022, but ONLY after first discussing your concern with the previous two individuals.

12. If appropriate, Material Safety Data Sheets (MSDS) are maintained on file in the department for your review. Access to these documents may be provided by the:
   • instructor of this course,
   • Program Coordinator, or
   • Department Secretary.
   Seek initial access through the instructor or Coordinator rather than the secretary.

13. An I (incomplete) grade is given only for extenuating circumstances and in accordance with University and Departmental Policies.