Stephen F. Austin State University

EGR 476 – Special Problems (Elective)

Course Description:
Experimental and theoretical independent study in research. Not available for graduate credit. Prerequisite: 12 semester hours of engineering or physics. 3 credit hours.

Prerequisites: 12 semester hours of engineering or physics  Co-Requisites: None

Credits: 1-3 Hours (Lecture: 3 Hours)

Instructor: Christopher J. Aul

Textbook: None

Supplemental Materials: None

Topics Covered:
Engineering design, project planning, CAD, dimensioning and tolerances, fabrication methods, experimental testing, reporting of technical information.

Course Learning Outcomes
By the end of the course, a successful student will be able to:
1. Design an appropriate solution to the prescribed work. (SO-2)
2. Apply principles in engineering design to evaluate concept and final design. (SO-1)
3. Reference up-to-date engineering designs developed for similar applications. (SO-4)
4. Describe overall design choices in a comprehensive written report. (SO-3)
5. Test the experimental design and record results against requirements of project. (SO-6)

Student Outcomes
Graduates of the program will show:
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.
Course Outline:

Engineering 476 – Fall 2016
Special Problems

Department of Physics and Astronomy, Stephen F. Austin State University

Instructor: Christopher J. Aul, PhD
Email: aulcj@sfasu.edu
Office: 322E Miller Science
Phone: 936-468-1512
Office Hours: Tues 1-4pm, Wed 1-3pm, Thur 10-12am & 1-4pm, or by appointment
Class Meetings: Thursdays 9:00-9:50am
Course Home Page: http://d2l.sfasu.edu

Course Description:
Experimental and theoretical independent study in research. Not available for graduate credit. Prerequisite: 12 semester hours of engineering or physics. 3 credit hours.

Text and Materials:
The materials for this course will be available online in the form of datasheets. Equipment is available in the instructor’s laboratory.

Course Requirements:
A written report is required at the times indicated in the Course Calendar below. Overall the course will require the student to achieve the following objectives:

Objectives
1. Complete design of specific components on Shock Tube experiment in instructor’s laboratory.
2. Procure materials and arrange for construction of design.
3. When fabricated components are completed assemble final design.
4. Create assembly instructions as well as a user manual for design.
5. Record progress in a Final Design Report.

Requirements for Final Design Report
1. Describe method of construction for original parts and outline purchased parts.
2. Include design drawings and assembly views from SolidWorks.
3. Record results of final design assembly.

Course Calendar:

<table>
<thead>
<tr>
<th>Week(s)</th>
<th>Milestone or Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-8</td>
<td>CAD Design due on 10/24/18</td>
</tr>
<tr>
<td>8-16</td>
<td>Final Design Report due on 12/14/18</td>
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Grading Policy:
The grading for this course comes purely from the design reports due throughout the semester. It is the responsibility of the student to meet with the instructor throughout the semester to determine the grading criteria for the design reports. Letter grades are based on the following ranges:
A: 90.0 – 100, B: 80.0 - 89.9, C: 70.0 - 79.9, D: 60.0 - 69.9, F: 0 - 59.9.

Attendance Policy:
Attendance will be taken at the beginning of each class. If you have 3 unexcused absences, then your final grade will be reduced by one letter grade. If you have 4 unexcused absences, you will receive an “F” in the course. To receive an excused absence a written and signed notice is required within three class days of the absence. If you miss class without approval of your instructor you will receive a grade of zero on the missed assignment. Authorized absences must be approved by your instructor in advance of the absence unless you have an emergency or illness. Make-up work must be completed outside of normal class hours and within one week following an excused absence. It is your responsibility to see your instructor and make arrangements for make-up work.

Academic Integrity (A-9.1)
Collaboration on examinations, in class assignments, and homework assignments is forbidden except where specifically specified as "Team" activities. For example, homework assignments can be worked on as a team but must be completed separately. In general, one team may not collaborate with another team on "Team" activities. Students violating this policy will be subject to procedures described in the Stephen F. Austin State University Policies and Procedures Manual.

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade
automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities**
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Program Learning Outcomes**
These are consistent with the “Student Outcomes” earlier in the syllabus document.

**Student Learning Outcomes**
These are consistent with the “Course Learning Outcomes” earlier in the syllabus document.

**General Education Core Curriculum Objectives/Outcomes (EEO)**
This course is not included in the general education core curriculum. Therefore, please see the learning outcomes above rather than any Exemplary Educational Objectives (EEOs).