MATSCEN 4382 (Approved): Design and Professional Practice II

Course Description
An in-depth design project to foster independent thinking and to develop problem-solving skills. Design of experiments, applied statistics, presentation and communication skills will be discussed.

Prior Course Number: MSE695
Transcript Abbreviation: Senior Design
Grading Plan: Letter Grade
Course Deliveries: Classroom
Course Levels: Undergrad
Student Ranks: Junior, Senior
Course Offerings: Spring
Flex Scheduled Course: Never
Course Frequency: Every Year
Course Length: 14 Week
Credits: 3.0
Repeatable: No
Time Distribution: 3.0 hr Lec
Expected out-of-class hours per week: 6.0
Graded Component: Lecture
Credit by Examination: No
Admission Condition: No
Off Campus: Never
Campus Locations: Columbus
Prerequisites and Co-requisites: MSE4381 or permission of the instructor.
Exclusions:
Cross-Listings:

The course is required for this unit's degrees, majors, and/or minors: Yes
The course is a GEC: No
The course is an elective (for this or other units) or is a service course for other units: No

Subject/CIP Code: 14.1801
Subsidy Level: Baccalaureate Course

Programs

Abbreviation	Description
MATSCEN	Materials Science and Engineering

Course Goals

Students will learn how to execute design projects, work in teams and effectively disseminate their findings.
Students will learn materials processing methods, testing techniques and how to interpret experimental datasets.
Students will learn methods for material inspection, how to identify modes of failure and to troubleshoot design problems.

Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Project management (Gannt charts, budgets, tollgates)	6.0							

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Senior project (project execution)			15.0					
Senior project (data analysis and functional testing)			9.0					
Manuscript writing and critiquing	3.0							
Presentation/Oral communication skills	3.0							
Project Presentations	6.0							

Representative Assignments

A research report will be written by every team describing their engineering design problem, its societal impact and how they have solved this problem.
One oral presentation will be given by each group to report their findings.

Grades

Aspect	Percent
Presentation	50%
Report	50%

ABET-EAC Criterion 3 Outcomes

Course Contribution		College Outcome
**	a	An ability to apply knowledge of mathematics, science, and engineering.
***	b	An ability to design and conduct experiments, as well as to analyze and interpret data.
**	c	An ability to design a system, component, or process to meet desired needs.
***	d	An ability to function on multi-disciplinary teams.
***	e	An ability to identify, formulate, and solve engineering problems.
*	f	An understanding of professional and ethical responsibility.
**	g	An ability to communicate effectively.
*	h	The broad education necessary to understand the impact of engineering solutions in a global and societal context.
*	i	A recognition of the need for, and an ability to engage in life-long learning.
**	j	A knowledge of contemporary issues.
***	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

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