



EIN 3000: Introduction to Industrial Engineering and Management Systems

COURSE SYLLABUS

Instructor: Dr. Christopher D. Geiger

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Office Hours: Tue, Thu: 12:30 PM – 2:30 PM, and by appt

Term: Fall 2008

Class Meeting Days: Tue, Thu

Class Meeting Time: 3:30 - 4:20 PM EDT

Class Location: HEC 0110

Graduate Teaching Assistant: Samiullah (Sami) Durrani

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Office Hours: Mon, Wed: 11:30 AM – 1:00 PM, and by appt

I. University Course Catalog Description

An overview of the issues important to the operation of an industrial or service facility.

II. Course Overview

Industrial Engineers (IEs) design, develop, install and improve integrated systems of people, equipment, information, financial resources, software, materials, and energy. IEs work in a variety of manufacturing, healthcare, utility, retail, government and research settings; therefore, the tools and methods of the industrial engineer are both varied and broad. They use knowledge and skills in engineering, mathematics, and physical and social sciences along with the principles and methods of engineering analysis and design to monitor and improve such systems. While manufacturing, for many years, has been the setting for Industrial Engineers due to its historical grounding, the need to improve the productivity and quality of our growing service sector has substantially broadened the applicability of Industrial Engineering practices.

The primary purpose of this course is to provide students with an introduction to the fundamentals of Industrial Engineering and the Industrial Engineering profession. During this course, students will develop the skill to recognize Industrial Engineering problems (*i.e.*, opportunities), and understand the types of technical and professional skills that are needed to address these problems that they will need to develop during the course of their study. The course will also introduce the student to the UCF IEMS Department and include an overview of some of the engineering and contemporary topics used in Industrial Engineering such as methods engineering and human factors, facilities planning and design, operations planning and control, Total Quality Management and Systems Thinking. In addition, students will receive instruction to help develop their professional skills in communication, professionalism and ethical behavior, and working in teams.

III. Course Learning Objectives

Upon completion of this course, the student will be able to:

1. Know the NSPE Code of Ethics and apply the Code of Ethics to ethical dilemmas
2. Identify and Industrial Engineering problems
3. Apply Industrial Engineering problem-solving techniques to problems
4. Know the various areas in which Industrial Engineers work

IV. Course Prerequisites

None.

V. Credits
2 (2-0)

VI. Course Texts

W.C. Turner, J.H. Mize, K.E. Case and J.W. Nazemetz, *Introduction to Industrial Engineering and Systems Engineering*, 3rd Edition, Prentice Hall, Upper Saddle River, NJ, 1993.

L. Finkelstein, Jr., *Pocket Book of Technical Writing for Engineers and Scientists*, 3rd edition, McGraw-Hill, New York, NY, 2008.

VII. Course Requirements

Homework Assignments: During the semester, periodic assignments will be assigned during the class period and must be submitted on their associated due date. No late assignments will be accepted by the instructor.

Examinations: Each student will be responsible for completing a mid-term and a final examination. The final examination will be cumulative. No makeup examinations will be given.

Quizzes: Brief ten (10) minute announced multiple-choice quizzes will be given at the end of a class on any topics in any lecture (regular or guest) covered and any reading material assigned up to the time the quiz is administered. Missed quizzes cannot be made up.

Team Project: Each student as part of a team will be required to complete a research project. Each team will be responsible for completing a written report and oral presentation of the project.

VIII. Course Grading

Course Item	Percent of Final Grade
Homework Assignments	10%
Quizzes	15%
Examinations	30%
Course Project	45%
Proposal	5%
Mid-Term Progress Report	10%
Final Report	20%
Final Presentation	10%
	100%

Grading Scale (%)	Interpretation
90 ≤ A ≤ 100	: Excellent, exceeds average understanding as evidenced in course work and goes well beyond the basics.
80 ≤ B < 90	: Far above average, fully meets average understanding as evidenced in course work and fully understands the basics and can deal with concepts somewhat beyond that level.
70 ≤ C < 80	: Average, meets minimum expectations and satisfies course requirements
60 ≤ D < 70	: Below average, meets many minimum expectations and satisfies all or most course requirements.
0 ≤ F < 60	: Fails to meet minimum expectations in understanding and course work as evidenced by performance and submission of graded elements

IX. Grading Objections

All objections to grades should be made IN WRITING WITHIN ONE WEEK of the work in question. Objections made after this period has elapsed will NOT be considered – NO EXCEPTIONS.

X. Course Topics

Topic
<ul style="list-style-type: none"> • Introduction to Industrial Engineering Profession • Overview of the UCF IEMS Department • Professionalism and Ethics • Technical Writing and Communication • Productive Systems Design: Methods Engineering and Human Factors • Productive Systems Design: Facility Planning and Design • Productive Systems Control: Operations Planning and Control • Productive Systems Control: Quality Control and Total Quality Management • Systems Thinking

XI. Professionalism and Ethics

Per university policy and plain classroom etiquette, mobile phones, *etc.* must be silenced during all classroom lectures. Those not heeding this rule will be asked to leave the classroom immediately so as to not disrupt the learning environment.

Academic dishonesty in any form will not be tolerated!!! If you are uncertain as to what constitutes academic dishonesty, please consult The Golden Rule, the University of Central Florida's Student Handbook (<http://www.goldenrule.sdes.ucf.edu/>) for further details. As in all University courses, The Golden Rule Rules of Conduct will be applied. Violations of these rules will result in a record of the infraction being placed in your file and the student receiving a zero on the work in question AT A MINIMUM. At the instructor's discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University.

XII. Students with Special Testing/Learning Needs

Students with special needs and require special accommodations must be registered with UCF Student Disability Services prior to receiving those accommodations. Students must have documented disabilities requiring the special accommodations and must meet with the instructor to discuss the special needs as early as possible in the first week of classes. UCF Student Disability Services can be contacted at <http://www.sds.sdes.ucf.edu/>, or at (407)823-2371.

XIII. Relationship of Course to ABET Criteria

ABET Criteria	Level of Emphasis During Course (Low, Medium, High)
a. Ability to apply knowledge of mathematics, science and engineering to model and solve Industrial and Management Systems Engineering problems	Medium
c. Ability to design processes and integrated systems that achieve system design objectives which typically include considerations of productivity, quality, profitability, and ergonomics and safety	High
e. Ability to identify, formulate and solve Industrial and Management Systems Engineering problems	High
f. Ability to understand and appreciate professional conduct and ethical responsibility	Medium
g. Ability to communicate effectively	High
h. Ability to understand the impact of engineering solutions in a global and social context	Low
i. Ability to engage in life-long learning and appreciate the need for	Medium

ABET Criteria	Level of Emphasis During Course (Low, Medium, High)
continual self-development	
j. Knowledge of contemporary issues	Low
k. Ability to use the techniques, skills, and the modern engineering tools necessary for Industrial and Management Systems Engineering	High

XIV. Contribution of Course to the Professional Component

- Math & Science Topics – 0.5 credit, or 25%
- Engineering Topics – 1.0 credit, or 50%
- General Education Topics – 0.5 credit, or 25%

XV. Computer Skills/Usage

- Students are expected to have access to and be familiar with:
 - a word processing application (*e.g.*, Microsoft Word) as all assignments will require its use;
 - a spreadsheet application (*e.g.*, Microsoft Excel) as some assignments may require its use; and
 - Adobe Acrobat Reader 6.0 or higher to view course documents.
- Webcourses and e-mail will be used to communicate with students and disseminate materials and assignments throughout the course. So, students should check Webcourses and their e-mail at least once per day.
- When sending e-mail to the instructor, please begin the “Subject:” of the message with the following:
EIN 3000:<space>

XVI. Excusal from Course Assignments and Course Examinations

If an emergency arises and a student cannot submit assigned work on or before the scheduled due date or cannot take an exam on the scheduled date, the student **MUST** give notification to the instructor **NO LESS THAN 24 HOURS BEFORE** the scheduled date and **NO MORE THAN 48 HOURS AFTER** the scheduled date.

XVII. Class Attendance and Participation

- Regular class attendance is strongly advised and is necessary for students to fully grasp many of the course concepts.
- Please be on time to class.
- If you miss a class session, it will be your responsibility to find out the materials that were covered.
- Students in attendance are expected to be active participants in the course. This participation includes: contributing to class discussions, providing insight into the class discussion topics, raising questions, and relating class material to personal experiences and other course topics.

XVIII. Important Dates to Remember

First Day of Classes:	August 25
Last Day to Add/Drop Classes:	August 29
Labor Day (University Holiday – No Classes):	September 1
Last day to withdraw from a course (without grade evaluation):	October 17
Veteran’s Day (University Holiday – No Classes):	November 11
Thanksgiving (University Holiday – No Classes):	November 27-29
Last Day of Classes:	December 6
Final Examination Period:	December 8-13

Note: The instructor reserves the right to modify the information contained in this document at his discretion.



Department of Industrial Engineering and Management Systems
College of Engineering and Computer Science
University of Central Florida

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COURSE SCHEDULE

(Includes course topics, relevant reading material, homework assignments, project tasks, and examinations)

Week	Day	Date	Topic	Relevant Reading	HW/Project Tasks
1	Tue	Aug 26	Instructor Introduction; Course Overview		Course Project ASSIGNED
	Thu	Aug 28	Overview of the Industrial Engineering Profession	Lecture Notes; Turner <i>et al.</i> : Chs. 1 & 2	
2	Tue	Sep 2	Overview of the UCF IEMS Department	Lecture Notes	HW 1 ASSIGNED
	Thu	Sep 4	Professionalism and Ethics	Lecture Notes; Turner <i>et al.</i> : Chs. 1 & 2	
3	Tue	Sep 9	Guest Speaker (Dr. Bill Thompson, IEMS Department Undergraduate Coordinator)		HW 1 DUE Course Project Team Member Request DUE
	Thu	Sep 11	Professionalism and Ethics (cont'd) Technical Writing and Communication	Lecture Notes; Finkelstein: Chs. 1, 2, 3, 4, 5, 13, 14, & 15	HW 2 ASSIGNED
4	Tue	Sep 16	Technical Writing and Communication (cont'd)	Lecture Notes; Finkelstein: Chs. 6, 7, 8, 9, 10, 11, 12, & 17	
	Thu	Sep 18	Problem Identification Approaches		HW 2 DUE
5	Tue	Sep 23	Productive Systems Design: Methods Engineering, Work Measurement, Workplace Design and Human Factors	Lecture Notes; Turner <i>et al.</i> : Chs. 6 & 11	
	Thu	Sep 25	Productive Systems Design: Methods Engineering, Work Measurement, Workplace Design and Human Factors (cont'd)		Project Proposal DUE
6	Tue	Sep 30	Productive Systems Design: Facilities Planning and Design and Material Handling	Lecture Notes; Turner <i>et al.</i> : Chs. 4 & 5	
	Thu	Oct 2	Productive Systems Control: Operations Planning and Control	Lecture Notes; Turner <i>et al.</i> : Ch. 7	HW 3 ASSIGNED
7	Tue	Oct 7	Productive Systems Control: Operations Planning and Control (cont'd)		
	Thu	Oct 9	Productive Systems Control: Quality Control and Total Quality Management	Lecture Notes; Turner <i>et al.</i> : Ch. 8	HW 3 DUE

8	Tue	Oct 14	Productive Systems Control: Quality Control and Total Quality Management (cont'd)		
	Thu	Oct 16	Systems Thinking	Lecture Notes; Turner <i>et al.</i> : Chs. 18, 19 & 20	Mid-Term Progress Report DUE
9	Tue	Oct 21	Mid-Term Examination Review		
	Thu	Oct 23	Mid-Term Examination		Mid-Term Examination
10	Tue	Oct 28	Guest Speaker (Walt Disney World)		
	Thu	Oct 30	Guest Speaker (UPS)		HW 4 ASSIGNED
11	Tue	Nov 4	Guest Speaker (Lockheed Martin)		
	Thu	Nov 6	Guest Speaker (Dr. Chuck Reilly, IEMS Department Graduate Coordinator)		HW 4 DUE
12	Tue	Nov 11	<i>Veteran's Day University Holiday (No Class)</i>		
	Thu	Nov 13	Project Presentations		Project Final Report and Final Presentations DUE
13	Tue	Nov 18	Project Presentations		
	Thu	Nov 20	Project Presentations		
14	Tue	Nov 25	Project Presentations		
	Thu	Nov 27	<i>Thanksgiving University Holiday (No Class)</i>		
15	Tue	Dec 2	Project Presentations		
	Thu	Dec 4	Project Presentations (if necessary); Course Review and Summary;		
16	Thu	Dec 11	Final Examination (1:00 PM – 3:50 PM)		Final Examination

Note: The dates of the topics, assignments and guest speakers are subject to change depending upon how things progress during the course of the semester.