IE 314.001 Statistical Quality Control
Course Syllabus: Spring 2013
MW 12:30-1:45PM AG/IT 211

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COURSE INFORMATION

Class Meeting Time and Room:
MW 12:30-1:45PM AG/IT 211

Course Text:
Montgomery, Douglas C. (2009). *Introduction to Statistical Quality Control*, Sixth Edition. John Wiley and Sons, Inc. (ISBN: 978-0-470-16992-6).

Course Description:
A comprehensive coverage of modern quality control techniques to include the design of statistical process control systems, acceptance sampling, and process improvement.
Prerequisite: IE 311-Advanced Engineering Statistics (Undergraduate Catalog 2012-2013)

Student Learning Outcomes:
After successfully completing the course, students should be able to do the following:

1. Understand the philosophy and basic concepts of quality improvement.
2. Describe the DMAIC process (define, measure, analyze, improve, and control).
3. Demonstrate the ability to use the methods of statistical process control.
4. Demonstrate the ability to design, use, and interpret control charts for variables.
5. Demonstrate the ability to design, use, and interpret control charts for attributes.
6. Perform analysis of process capability and measurement system capability.
7. Design, use, and interpret exponentially weighted moving average and moving average control charts.

Course Website: Class handouts, homework problems, and other relevant course materials will be posted on the eCollege course website. Students are expected to check the course website before every class for new information. To access the course website, login in to “myLEO”, select “eCollege”, and select “My courses”.

COURSE REQUIREMENTS

This course will be presented by using lectures, in-class exercises, and discussions. Student learning outcomes will be evaluated based on quizzes and exams.

1. There will be three mid-term exams and one final exam (see course schedule). All exams are open book and closed notes. Using any other resources during exams is not allowed. Students are allowed to bring a calculator during exams. There will be no make-up exams except in the cases noted below (see fourth bullet point).
2. There will be 10 quizzes (see course schedule). You are allowed to drop one of 10 quiz scores. Therefore, the quiz portion of your grade will be 35% of your course grade and will be calculated using the average of your best nine quiz scores (each quiz is equally weighted). There will be no make-up quizzes except in the cases noted below (see fourth bullet point).
3. Homework problems for each chapter will be assigned but will not be collected or graded. Therefore, students are encouraged to discuss and work together on the homework problems. Completing the homework problems is definitely an excellent way to prepare for the quizzes and exams.
4. No make-up exams and quizzes will be permitted unless official documentation for absences is provided. All documented absences due to religious observances and officially approved trips will be guaranteed as a make-up opportunity. Absences due to other unavoidable reasons (e.g., death in the family, illness) will be considered on a case-by-case basis, with appropriate documentation required. Except in the case of an emergency, the student must **always** seek instructor consent **prior to** the absence. Typically, make-up exams and quizzes might occur before the scheduled absence and as close to the original assignment date as possible. Generally, students who miss quizzes for officially documented absences may either elect to take a make-up quiz or use grade replacement with the next quiz.

Grading:

The **final course grade** will be calculated based on the following:

Quizzes	35%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam	20%

The grading scale is as follows:

90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
Below 60	F

TECHNOLOGY REQUIREMENTS

The following technologies will be required for this course.

- A scientific calculator
- Internet access to the course Web site
- Microsoft Excel
- Computer software freely available to students in the computer labs on campus

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:

1. Students are expected to attend all class periods and be fully prepared for each class.
2. While in class, please turn off your cell phone, iPods, and other music devices.
3. Students are responsible for downloading class handouts and assignments from the course website. The instructor will not bring paper copies of class handouts to class.
4. I reserve the right to make changes to this syllabus as needed.

Academic Dishonesty

Texas A&M University-Commerce will not condone plagiarism in any form. Plagiarism represents disregard for academic standards and is strictly against University policy. Plagiarized work can result in a "0" on a given assignment(s) or an "F" for the course as well as further administrative sanctions permitted under University policy. You may discuss course work and other course materials with fellow students (except during tests), but it is inappropriate to have another student do your course work or provide you with any portion of it.

University Specific Procedures:

ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamu-commerce.edu

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook).*

COURSE OUTLINE / CALENDAR

Topics (Course Content):

Quality Improvement in the Modern Business Environment (Chapter 1)
The DMAIC Process (Chapter 2)
Methods and Philosophy of Statistical Process (Chapter 5)
Control Charts for Variables (Chapter 6)
Control Charts for Attributes (Chapter 7)
Process and Measurement System Capability Analysis (Chapter 8.1-6)
Exponentially Weighted Moving Average and Moving Average Control Charts (Chapter 9.2-3)

IE 314 Class Schedule – Spring 2013

Week	Date	Topics	Reading	Assignments
Week 1	M Jan 14	Course Introduction	Ch1	
	W Jan 16	Definitions of Quality and Quality Improvement	Ch1	
Week 2	M Jan 21	MLK Holiday – No Class		
	W Jan 23	Statistical Methods and Management Aspects for Quality Control and Improvement	Ch1	
Week 3	M Jan 28	The DMAIC Process	Ch2	
	W Jan 30	The DMAIC Process, Cont.	Ch2	Quiz 1
Week 4	M Feb 4	The DMAIC Process, Cont.	Ch2	
	W Feb 6	Statistical Process Control	Ch5	Quiz 2
Week 5	M Feb 11	Statistical Process Control, Cont.	Ch5	
	W Feb 13	**Exam 1**		**Exam 1**
Week 6	M Feb 18	SPC-The Magnificent Seven	Ch5	
	W Feb 20	Applications of SPC	Ch5	Quiz 3
Week 7	M Feb 25	Control Charts for Variables	Ch6	
	W Feb 27	Control Charts for Variables, Cont.	Ch6	Quiz 4
Week 8	M Mar 4	Control Charts for Variables, Cont.	Ch6	
	W Mar 6	**Exam 2**		**Exam2**
	Mar 11 -15	**Spring Break – No Class**		
Week 9	M Mar 18	Control Chart for Individual Units	Ch6	
	W Mar 20	Applications for Variables Control Charts	Ch6	Quiz 5
Week 10	M Mar 25	Control Charts for Attributes	Ch7	
	W Mar 27	Control Charts for Attributes, Cont.	Ch7	Quiz 6
Week 11	M April 1	Control Charts for Attributes, Cont.	Ch7	
	W April 3	Choice between Attributes and Variables Control Charts	Ch7	Quiz 7
Week 12	M April 8	Process Capability Analysis	Ch8	
	W April 10	**Exam 3**		**Exam 3**
Week 13	M April 15	Process Capability Ratios	Ch8	
	W April 17	Process Capability Analysis, Cont.	Ch8	Quiz 8
Week 14	M April 22	Process Capability Analysis, Cont.	Ch8	
	W April 24	Exponentially Weighted Moving Average Control Chart	Ch9	Quiz 9
Week 15	M April 29	Moving Average Control Chart	Ch9	
	W May 1	Class Wrap Up		Quiz 10
Final	**W May 8th**	**Final Exam: 1:15-3:15PM**		**Final Exam**

Exam Schedule:
Exam 1: Wednesday, February 13
Exam 2: Wednesday, March 6
Exam 3: Wednesday, April 10
Final Exam: Wednesday, May 8, 1:15-3:15PM