IE 314.001 – Statistical Quality Control  
Course Syllabus: Spring 2015  
MW 12:30 – 1:45 PM,  AGIT 211

**Instructor:** Dr. Andrea Graham  
Assistant Professor  
Department of Engineering & Technology

**Office Location:** Charles J. Austin Engineering & Technology Building, Room 216

**Office Hours:** MWF 10:00am – 12:00pm or by appointment

**Office Phone:** (903) 468-8737

**Office Fax:** (903) 886-5960 (Inform instructor when a fax is sent)

**University Email Address:** andrea.graham@tamuc.edu

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**COURSE INFORMATION**

**Class Meeting Time and Room:** MW 12:30-1:45PM  AGIT 211

**Course Textbook (Required):**  

**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

**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 processes (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.  
8. Understand and interpret the basic concepts and usage of Lean Six Sigma.
This course will be presented by using lectures, in-class exercises, homework and discussions. Student learning outcomes will be evaluated based on quizzes, homework, a project and exams.

1. There will be two semester 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 announced and unannounced quizzes. There will be no make-up quizzes except in the cases noted below (see item #5).

3. Homework problems for each chapter will be assigned and are due one (1) week later prior to the start of class.

4. There will be one semester project required related to the course content delivered. A detailed project description will be given mid-semester.

5. 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 based upon the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
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<tr>
<td>Exam 2</td>
<td>20%</td>
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<tr>
<td>Project</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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</tbody>
</table>

**Grading Scale:**
- A = 90% and above
- B = 80% - 89%
- C = 70% - 79%
- D = 60% - 69%
- F = 0% - 59%
TECHNOLOGY REQUIREMENTS

The following technologies will be required for this class.
- A scientific calculator for exams (one with built-in statistical functions).
- Microsoft Excel
- Internet access to download class notes, assignments, and readings from the course Web site (if applicable).
- Computer software will be freely available for 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. Homework must be turned in at the beginning of the class on the day it is due. Late assignments will not be accepted.
4. As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Academic Dishonesty
Texas A&M University-Commerce will not allow plagiarism in any form. The students' course works should be their own. Plagiarism represents disregard for academic standards and is strictly against University policy. If you have a question regarding academic dishonesty and integrity, please talk to the instructor or refer to the Code of Student Conduct from Student Guide Handbook.

University Specific Procedures:

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Students with Disabilities:
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
Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu
### COURSE OUTLINE/CALENDAR
#### IE 314 Class Schedule – Spring 2015

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>TOPICS</th>
<th>Reading</th>
<th>ASSIGNMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 20</td>
<td>-First day of class</td>
<td>-Course Introduction -Definitions of Quality and Quality Improvement</td>
<td>Ch 1</td>
<td>-</td>
</tr>
<tr>
<td>Week 1</td>
<td>1/21</td>
<td>- Statistical Methods and Management Aspects for Quality Control and Improvement</td>
<td>Ch 1</td>
<td>HW #1</td>
</tr>
<tr>
<td>Week 2</td>
<td>1/26, 1/28</td>
<td>- The DMAIC Process</td>
<td>Ch 2</td>
<td>Quiz #1</td>
</tr>
<tr>
<td>Week 3</td>
<td>2/2, 2/4</td>
<td>- The DMAIC Process, Cont. -Statistical Process Control</td>
<td>Ch 2</td>
<td>HW #2</td>
</tr>
<tr>
<td>Week 4</td>
<td>2/9, 2/11</td>
<td>- Statistical Process Control, Cont. - SPC- The Magnificent Seven</td>
<td>Ch 5</td>
<td>Hw #3</td>
</tr>
<tr>
<td>Week 5</td>
<td>2/16, 2/18</td>
<td>- Applications of SPC -Control Charts for Variables</td>
<td>Ch 6</td>
<td>-</td>
</tr>
<tr>
<td>Week 6</td>
<td>2/23, 2/25</td>
<td>- Exam 1(CH 1,2,5) -Control Charts for Variables, Cont.</td>
<td>Ch 7</td>
<td>-</td>
</tr>
<tr>
<td>Week 7</td>
<td>3/2, 3/4</td>
<td>- Control Charts for Variables, Cont</td>
<td>Ch 8</td>
<td>Quiz #3</td>
</tr>
<tr>
<td>Week 8</td>
<td>3/9, 3/11</td>
<td>- Control Charts for Individual Units -Applications for Variable Control Charts</td>
<td>Ch 6</td>
<td>Hw #5</td>
</tr>
<tr>
<td>Mar 16-20</td>
<td>- Spring Break- No classes</td>
<td>- Exam 2 (Ch 6,7) - Process Capability Analysis, Cont</td>
<td>Ch 9</td>
<td>-</td>
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<tr>
<td>Week 9</td>
<td>3/23, 3/25</td>
<td>- Control Charts for Attributes</td>
<td>Ch 7</td>
<td>Project Abstract Due</td>
</tr>
<tr>
<td>Week 10</td>
<td>3/30, 4/1</td>
<td>- Control Charts for Attributes</td>
<td>Ch 7</td>
<td>Hw #6</td>
</tr>
<tr>
<td>Week 11</td>
<td>4/6, 4/8</td>
<td>- Control Charts for Attributes, Cont</td>
<td>Ch 7</td>
<td>Hw #7</td>
</tr>
<tr>
<td>Week 12</td>
<td>4/13, 4/15</td>
<td>- Process Capability Analysis - Exam 2 (Ch 6,7)</td>
<td>Ch 8</td>
<td>Project Due</td>
</tr>
<tr>
<td>Week 13</td>
<td>4/20, 4/22</td>
<td>- Process Capability Ratios</td>
<td>Ch 8</td>
<td>Hw #8</td>
</tr>
<tr>
<td>Week 14</td>
<td>4/27, 4/29</td>
<td>- Process Capability Analysis, Cont</td>
<td>Ch 9</td>
<td>Hw #9</td>
</tr>
<tr>
<td>Week 15</td>
<td>5/4, 5/6</td>
<td>- Moving Average Control Chart -Project Presentations and Class Wrap Up</td>
<td>Ch 9</td>
<td>Project Due</td>
</tr>
</tbody>
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**Important Dates:**
- Exam #1: Monday, March 2
- Exam #2: Wednesday, April 15
- Project 1-page Abstracts Due: April 1
- Final Projects Due: May 6

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