SIE 406/506 QUALITY ENGINEERING - Spring 2017

(Tuesday and Thursday 11:00am– 12:15pm, Aero & Mech Engr S212)

Instructor: Jian Liu
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Hours: Tue. 12:30 – 1:30PM
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Office: ENGR 258
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Hours: Mon. 3:00 – 4:00PM; Tue. 3:00-4:00PM and Wed. 3:00 – 5:00PM
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Text: "Introduction to Statistical Quality Control", D. Montgomery, 7th edition.

Website: http://d2l.arizona.edu/

Temporary Lecture Schedule:

Lecture	Dates	Topics	References
1	01/12	Course overview + Introduction	Ch 1
2	01/17	Modeling Process Quality (MPQ)	Ch 2
3	01/19	MPQ + Inferences About Quality	Ch 2/3
4	01/24	Inferences About Quality	Ch 3
5	01/26	Inferences About Quality	Ch 3
6	01/31	Inferences About Quality	Ch 3
7	02/02	Methods and Philosophies	Ch 4
8	02/07	Methods and Philosophies	Ch 4
9	02/09	Quality Control Philosophies & Applications	Ch 4
10	02/14	Charting Variables	Ch 5
11	02/16	Charting Variables	Ch 5
12	02/21	Charting Variables	Ch 5
13	02/23	Implementing Charts + Charting Attribute	Ch 5+6
14	02/28	Charting Attribute + CUSUM	Ch 6+8
15	03/02	Review Session	
16	03/07	Group project discussion and Exam I preparation	
16	**03/09**	**Exam I (in class)**	
18	03/14	Spring Recess	
19	03/16	Spring Recess	
20	03/21	EWMA	Ch8
21	03/23	Short Production Runs	Ch9-1
22	03/28	SPC with Autocorrelated Data	Ch9-4
23	03/30	Process Capability	Ch 7
24	04/04	Gage R&R	Ch 7
25	04/06	Specification/Tolerances	Ch 7
26	04/11	Acceptance Sampling	Ch 14
27	04/13	Acceptance Sampling	Ch 14
28	04/18	Project Presentations	
29	04/20	Project Presentations	
30	04/25	Project Presentations	
31	04/27	Project Presentations	

32	05/02	**Exam II preparation**
33	**05/12**	**Project Report Due (12:00pm)**

The above topics and schedule are subject to change. Revisions in the syllabus may occur as the semester progresses.

Homework:

The homework will be assigned on Thursdays and due on the following Thursday, *before the end of the class*. NO late submission is allowed unless it is requested and approved by the instructor in advance (e-mail or phone-call received *before* the date the assignment is due). You are encouraged to discuss homework problems with fellow students. But your final product should be based on your own understanding. Copying other's work is not acceptable.

Examinations:

Exam I: **March 09**, Thursday, in class
Exam II: **May 09**, Tuesday, 10:30 AM – 12:00PM.

Makeup examinations MUST be requested at least one week prior to the date the exam is held. In case of medical or other personal/family emergencies, a formal excuse (doctor's note, etc.) is required.

Project:
Project requirements and guidance will be posted on **February 16, 2017**. Teamwork, individual contribution, group presentation and group report will be required and evaluated.

Grading:	Homework	15%
	Exam I	30%
	Exam II	35%
	Project	20%
	There is no extra credit for any student	

Course Outcomes:

1 Develop a control chart for monitoring continuous and discrete quality characteristics.
2 Design acceptance-sampling plans.
3 Assess statistical process capability.
4 Implement CUSUM and EWMA charts.
5 Establish specific plan for short production run.
6 Assess product specifications and tolerances.