SIE 406/506 QUALITY ENGINEERING - Spring 2019
(Tuesday and Thursday 11:00am– 12:15pm, Aero & Mech Engr S212)

Instructor: Jian Liu
Office: ENGR 221
Phone: 520-621-6548
Hours: Tue. 12:30 – 1:30PM and
Or by appointment

Online *Office Hours*:
Tue 8:00-9:00 pm
Email: jianliu@email.arizona.edu

TA: Bijoy Chowdhury
Office: ENGR 258

Hours: Mon 2:00 – 3:00 pm
Wed 11:00 am – 12:00 pm
Or by appointment

Online *Office Hours*:
Mon/Wed 6:00-7:00 pm
Email: bijoy@email.arizona.edu

Skype account for online student office hours: 530siesie@gmail.com

Text: "Introduction to Statistical Quality Control", D. Montgomery, 7th edition.

Website: http://d2l.arizona.edu/
Course videos: D2L-> UA Tools -> Panopto

Temporary Lecture Schedule:

Lecture	Dates	Topics	References
1	01/10	Course overview + Introduction	Ch 1
2	01/15	Modeling Process Quality (MPQ)	Ch 2
3	01/17	MPQ + Inferences About Quality	Ch 2/3
4	01/22	Inferences About Quality	Ch 3
5	01/24	Inferences About Quality	Ch 3
6	01/29	Inferences About Quality	Ch 3
7	01/31	Methods and Philosophies	Ch 4
8	02/05	Methods and Philosophies	Ch 4
9	02/07	Quality Control Philosophies & Applications	Ch 4
10	02/12	Charting Variables	Ch 5
11	02/14	Charting Variables	Ch 5
12	02/19	Charting Variables	Ch 5
13	02/21	Implementing Charts + Charting Attribute	Ch 5+6
14	02/26	Review Session for Exam I	
15	**02/28**	**Exam I (in class)**	
	03/05	Spring Recess	
	03/07	Spring Recess	
16	03/12	Group project discussion and Exam I Review	
17	03/14	CUSUM	Ch 8
18	03/19	CUSUM + EWMA + MA	Ch 8
19	03/21	Short Production Runs	Ch9-1
20	03/26	SPC with Autocorrelated Data	Ch9-4
21	03/28	Process Capability	Ch 7
22	04/02	Project Preparation	
23	04/04	Gage R&R	Ch 7
24	04/09	Specification/Tolerances	Ch 7
25	04/11	Acceptance Sampling	Ch 14

	04/16	Acceptance Sampling	Ch 14
	04/18	Project Preparation/Presentations	
	04/23	Project Preparation/Presentations	
	04/25	Project Preparation/Presentations	
26	04/30	Review Session for Exam II	
27	05/01	Project Report Due (12:00 PM)	
28	**05/07**	**Exam II (10:30 AM– 12:00 PM)**	

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: **February 28**, Thursday, in class
Exam II: **May 07**, 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 14, 2019**. 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.