

ISE 327
Six Sigma and Lean Operations
Spring 2017

Instructor(s): Dr. Shalini Gupta

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Instructor's Office Hours: Thursday - 3:30 pm to 5:30 pm

GTA's Office Hours: TBD

Web Site: blackboard.usc.edu

Time and Place of Class Meetings: Monday - Wednesday 10:00 am – 11:15 am, KAP 145

Required Textbooks and Other Course Materials:

1. Pyzdek, Thomas . The Six Sigma Handbook- Revised and Expanded, Quality America Incorporated.
2. Rath and Strong, Six Sigma Pocket Guide
3. Liker, The Toyota Way

Student Learning Outcomes: In this course, you will learn how to apply the 5-step DMAIC problem solving process, how to use basic statistical tools (cause and effect, Pareto, histogram, scatter plot) to identify the root cause of a problem, and how to use advanced statistical tools (measurement system analysis, regression, designed experiments, control charts) to confirm the effectiveness of a proposed problem solution. You will learn the organizational structure needed to manage a problem solving project. You will also learn five key principles that foster organizational excellence, and how to use basic organizational tools (Value Stream Map, A3 report, 5S, mistake proofing) that help in making these principles a part of daily activity.

Course Material: All assigned sections of the texts, plus topics discussed in lecture by the instructor.

Exams: Each exam will cover the material presented up to and including the preceding homework assignment. Points will be assigned to each section of the exam. No re-takes

will be allowed. No make-up exam will be given. The FINAL EXAM will cover material presented since the second midterm exam. Grading will be similar to the midterm exams.

Projects: The project is designed to exercise the skills which you develop over the course of the semester. The project will require you to collect data, model and animate the system, and perform statistical analysis. Prior to working on a project, a proposal must be approved. Additional details will be provided during the course.

Homework: Problems sets will be assigned. Homework is not accepted late. If a paper shows an acceptable answer to each assigned exercise, the grade for the assignment is 10 points. An answer to a qualitative exercise is acceptable if it is relevant to the issue. An answer to a quantitative exercise is acceptable if it uses approximately the correct method. If any exercise is unacceptable, the paper will be returned with no points awarded.

Surprise Quizzes: Surprise Quizzes will be given. The score will be used to determine the semester points for the quizzes. Any person caught cheating on an examination or quiz will be reported to the university.

Grading Policy: All work will be done individually unless otherwise specified.

The grading policy is expected to be as follows: Typical grade scoring:

A = 100-95

A- = 94-90

B+ = 89-85

B = 84-80

B- = 79-65

C = Below 60

Exams (1 and 2)	20% Each
Exams (3)	35%
Project	15%
Homework	5%
Quizzes	5%
Total	100%

Accommodations for Disabilities: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the instructor as early in the semester as possible. DSP is located in GFS 120 and is open 8:30 am - 5:00 pm, Monday through Friday. The phone number for DSP is (213)740-0776.

Academic Integrity: The Department of Industrial and Systems Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus. Students are expected to be aware of and to observe the academic integrity standards described in SCampus. Students should expect those standards to be enforced in this course.

Preliminary schedule with examinations and due dates:

Week	Date	Topic	Text Chapters
0	9-Jan	Overview and History of Six Sigma	R&S: Chapter 1
	11- Jan	Six Sigma Concepts, Steps and Tools	R&S: Chapter 2
1	16- Jan	No Class	
	18- Jan	Step 1: Define	Pyzdek Chapter 7
2	23- Jan	Step 1: Define	Pyzdek Chapter 7
	25- Jan	Step 1: Define	Pyzdek Chapter 7
	30- Jan	Step 1: Define	Pyzdek Chapter 8
3	1- Feb	Step 2: Measure	Pyzdek Chapter 9
	6- Feb	Step 2: Measure	Pyzdek Chapter 9
4	8- Feb	Step 2: Measure	Pyzdek Chapter 10
	13- Feb	Examination 1	
5	15- Feb	Step 3: Analyze	Pyzdek Chapter 11
	20- Feb	No Class	
6	22- Feb	Step 3: Analyze	Pyzdek Chapter 13
	27- Feb	Step 3: Analyze	Pyzdek Chapter 14
7	1- March	Step 3: Analyze	Pyzdek Chapter 14
	6- March	Step 4: Improve	Pyzdek Chapter 15
8	8- March	Step 4: Improve	Pyzdek Chapters 16,17
	13 Mar.	No Class	
9	15 Mar.	No Class	
	20 March	Step 5: Control	Pyzdek Chapter 18
10	22 Mar.	Examination II	
	27 March	Step 5: Control	Pyzdek Chapter 18
	29 March	Step 5: Control	Pyzdek Chapter 18
11	3- April	History of Lean Operations	L: Chapters 1-2
	5- April	Key Principle 1: Long-Term Approach	L: Chapter 7
12	10- April	Key Principle 2: Flow of Work	L: Chapters 8-10
	12- April	Key Principle 3: Eliminate Waste	L: Chapters 11-14
13	17- April	Key Principle 4: Develop People	L: Chapters 15-17
	19- April	Key Principle 5: Cont. Solve Problems	L: Chapters 18-20
14	24- April	Project Presentations	
	26- April	Project Presentations	
15	Tentative	Final Exam	

