BME 4850/6850 – Six Sigma for Engineers

Course Description
Practical application of Six Sigma tools in production and service contexts. Includes videos and case studies of real-world applications. Six Sigma Green Belt Certificate awarded to students upon successful completion of the course and in-class project.

Offered both face-to-face and online
Undergraduate/Graduate level – 3 credit hours

- Graduate students have option of completing a mentored Six Sigma project in lieu of CS1, CS2 and MP1 assignments (40% of grade).
- In-class Grad students are required to present on one of "Advanced Level Six Sigma Tool" topics for the MP1 assignment, as opposed to "Basic and Intermediate Six Sigma Tool" topics available to UG students.
- Distance Grad students are required to complete a Case Study assignment in lieu of MP1 assignment. This Case Study assignment requires Grad students to demonstrate a higher level of understanding of Six Sigma project selection and implementation in comparison to that required on the comprehensive Final Exam taken by all students.

Course Learning Objectives
Students enrolled in this course will learn to:

1. Understand statistical tools used in Six Sigma
2. Implement Statistical Process Control (SPC)
3. Evaluate Six Sigma metrics and performance measurements
4. Learn about process improvement used DMAIC
5. Understand Six Sigma organization and infrastructure
6. Understand deployment strategies for Six Sigma projects
7. Use techniques for Six Sigma projects selection
8. Design for Six Sigma

Course Learning Outcomes
Upon successful completion of this course, students will be able to:

1. Understand statistical tools used in Six Sigma
2. Implement Statistical Process Control (SPC)
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Tentative Weekly Schedule

Date (week)	Topic
(1)	Course Introduction & Grading Criteria

Week 1	What is Six Sigma & How to Implement
Week 2	VOC, COPQ and Strategic Planning
	Data Driven Management
Week 3	Project Selection, Support and Tracking
	DMAIC & DMADV Projects and Teams
Week 4	Team Case Study Presentations (CS1)
	Team Case Study Presentations (CS1)
Week 5	*No Class-Online Assignment*
	No Class-Online Assignment
Week 6	The Define Phase
	The Measure Phase
Week 7	Process Behavior & Charting
	Guest speaker
Week 8	Measurement System Analysis & Process Capability
	The Analyze Phase – Part I
Week 9	The Analyze Phase – Part II
	The Improve/Design Phase – Part I
Week 10	The Improve/Design Phase – Part II
	The Control/Verify Phase
Week 11	Team Case Study Presentations (CS2)
	Team Case Study Presentations (CS2)
Week 12	In-Class Project – Day 1
	In-Class Project – Day 2
Week 13	In-Class Project – Day 3
	In-Class Project – Wrap Up
Week 14	In-Class Individual Mini-presentation #1 (MP1)
	In-Class Individual Mini-presentation #1 (MP1)
	Final Exam Review (Take home)
Week 15	Final Exam Due