RIT

ISEE 582/682: Lean Six Sigma Fundamentals

Syllabus

Description

This course is designed to provide students with the philosophy underlying quality initiatives with a specific emphasis on Lean Six Sigma. The fundamental elements of Lean Six Sigma are presented along with a broad range of problem solving and statistical tools that have been demonstrated to be valuable in enabling individuals to drive process improvements that are linked to and integrated with business plans in a wide array of environments and industries.

Prerequisites

Introductory statistics or applied probability course. ISEE-582 requires at least an associate's degree; ISEE-682 requires a bachelor's degree.

Yellow and Green Belt Criteria

Successful completion of this course is accompanied by Yellow Belt Certification for students who earn at least a final grade of C. Yellow Belt candidates will need to submit all assignments on time and post their discussion comments on time.

Optional: Outside the scope of this course, those receiving Yellow Belt certification can purse Green Belt certification which requires a completion of an approved Lean Six Sigma project at a sponsoring organization. The student is responsible for finding a project and management approval. The project must be initiated within 2 years of course completion. Contact the instructor for more information.

Topics

Module materials, tool templates, and slides are available on myCourses (RIT's course management system). You will use your textbook and the prerecorded presentations on myCourses to learn the material. Topics include:

1. The Quality Movement
2. Leadership
3. Systems Thinking
4. Affecting Change
5. Lean Six Sigma Overview
6. Strategic Planning
7. Project Selection
8. Project Management
9. Voice of the Customer
10. Teamwork
11. Define Stage
12. Measure Stage
13. Cost of Quality
14. Standard Work
15. Basic Statistics
16. Measurement Systems Analysis, Regression
17. Analyze Stage
18. Benchmarking
19. Improve Stage - Kaizen and Line Design
20. 5-S and Visual Controls
21. Setup Reduction, TPM, Kanban
22. SPC, Process Capability
23. Introduction to Design of Experiments
24. Control Stage
25. Management By Fact

Ethics and Class Behavior

As practitioners of Lean Six Sigma, it is expected and required that you maintain a high standard of ethics in this class. In keeping with the University's standards, plagiarism, copying or sharing materials is not tolerated and will result in a failing grade. Homework, exams, and discussion threads must be done alone. The simulation is a team project and should be submitted as a team. If you have questions about material covered in class or about the homework, you may certainly start a discussion thread to seek advice but your submission should be yours and yours alone.

Student Identify Verification Checklist

The Student Identity Verification Checklist (SIVC) goes above the minimum standard of a secure RIT log-in and asks each student to affirm who they say they are. You will affirm four straight forward statements which will confirm your identity and that you have read and understand the Computer Conduct Policy, the Academic Integrity Policy, and the course syllabus. **The SIVC is a non-graded quiz.**

Textbook and Materials

"An Introduction to Six Sigma & Process Improvement," Second Edition by James R. Evans and William M. Lindsay, published by Cengage Learning. Textbooks can be purchased or rented at http://rit.edu/virtualbookstore.com. ***A simulation also is required for the team project at a cost of $50 per student.***

Grading

Your final grade will be determined as follows:

Item	% of Grade	Grading Component	Calculation
Discussion Groups	12%	At least 1 Discussion Group comment each week for 14 weeks	Each comment is worth 0.86 points (1 comment required each week)
Homework	28%	7 Assignments—which includes one tool template	Each assignment worth 4 points and graded out of 10 total points each
Exam #1	15%	Modules 1-8 & Chapters 1,2, 3, 9	Graded out of 100%
Exam #2	15%	Modules 9-18 & Chapters 3, 4, 5, 8	Graded out of 100%
Final Exam	20%	Comprehensive with focus on Modules 19-25 & Chapters 6,7	Graded out of 100%
Project	10%	5 Group Reports using DMAIC	Graded out of 10 total points
Total	100%		

Discussion Groups

There will be weekly discussion groups. Participation in these discussion groups will count for 12% of your grade. (Participation is graded, not content). This grade will depend on the submission of at least **one comment or question weekly**. If there are multiple topics in a particular week, you must comment on at least one of them (add a question or comment). It is not sufficient to simply read the comments. If no comment is made byWednesday of the following week, a grade of zero will be entered for that discussion week.

Homework Assignments

Homework is the means by which the instructor monitors understanding and mastery of the material. It also gives you practice in the application of these concepts. Homework assignments are due in myCourses no later than 11:59PM on the date indicated. Rarely, exceptions can be requested before the due date in the case of documented illness or emergency. If an assignment is late, without prior request, one point (10%) is deducted each day. Homework submitted more than one week past the deadline will receive a grade of zero. Failure to understand or upload an assignment or uploading the wrong assignment is not a legitimate excuse and will result in the point deduction until the correct assignment is submitted. HOMEWORK IS NOT A GROUP EXERCISE AND WILL BE MONITORED. Students are free to ask for insights in the Discussion Board but cannot work the homework as a team. Homework counts **for 28% of your grade** so it is important to keep up on a weekly basis.

Many of the assignments require you to use a process from your work or from a prior job, or even a volunteer position. You will consistently use this same process for multiple homework assignments so you can see the tools applied to a process that you know well from practical experience. Please give some thought to the process you want to use as the course begins since it will be utilized for many assignments throughout the course.

Exams

There are 3 exams in the course. You will have two and one-half (2.5) continuous hours for the first exam, two and one-half (2.5) continuous hours for the second exam, and three (3) continuous hours for the Final Exam. **Exams must be done alone.** You may use your notes, readings, textbook, but not the internet or other individuals. The exams will be available in myCourses no later than a week before their due dates. You will have one chance to take the exam at your chosen time prior to the due date and you may only use the time allotted. Submissions that exceed the allocated time will result in point deductions. As with your assignments, submit each test through myCourses:

- **Exam # 1** – The exam will cover material presented in Modules #1 (Quality Movement) through Module #8 (Project Management).
- **Exam # 2** –This exam will cover material presented in Module #9 (Voice of the Customer) through Module #18 (Benchmarking).
- **Final Exam** This exam will focus on material presented in Modules 19 (Improve) through 25 (Management By Fact), but may draw upon information from throughout the course. This exam will last for 3 hours.

Team Project

We will simulate a project through a team effort. The project will be worked in self-formed groups of three students. You may select your team members and notify the instructor and team members by email by the due date specified; however, anyone not on a team by that date will be assigned by the instructor. Each team member will receive the same grade and it is expected that each member will contribute equally. If a team member fails to participate, the team should notify the instructor by email and a different grade may be given to the student who does not fully participate. Team work is an essential element of Lean Six Sigma and every effort should be constructed to engage and utilize the skills of each team member.

You will receive more information on how to register for the simulation. Although working in a team, ***each student must purchase the simulation at a cost of $50 per student****. This is a requirement from the vendor who is providing the simulation software to RIT at a deeply discounted price.*