Course Syllabus
OPRE 6364 0W1 – Lean Six Sigma
The University of Texas at Dallas

Course Information

Course

Course Number Section	OPRE 6364.0W1
Course Title	Lean Six Sigma
Term and Dates	Fall 2015 (August 24 - December 17)

Instructor Contact Information

Professor	Kannan Ramanathan
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Office Location	JSOM 3.622
Office Hours	Thursday 5:30-6:30 PM (by appointment only)

Teaching Assistant Contact Information

TA	Yuanyuan Dong
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Office Hours	TUE 5:30 PM to 6:30 PM
	THU 5:30 PM to 6:30 PM

About the Instructor

Kannan Ramanathan has an MA in Economics and an MBA in Marketing from the University of Pune in India. After working for 12 years as a consultant for various airlines, he returned to school and obtained a PhD in Business Strategy from the University of Illinois at Urbana-Champaign. He is a certified Black Belt and has extensive experience in Lean Six Sigma, and Risk Management with various businesses of General Electric as Black Belt and Master Black Belt. He joined the University of Texas at Dallas in 2008. He teaches courses in Healthcare Management and Lean Six Sigma. His research interests are in the application of Lean Six Sigma to healthcare.

Pre-requisite/ Co-requisite

OPRE 6301

Course Description

This class is designed to introduce students to concepts and techniques in Lean and Six Sigma. Lean manufacturing/service focuses on improving the speed of a process and the elimination of waste, primarily by eliminating non-value-added steps. Six Sigma deals with the effectiveness with which a process meets customer requirements. The graduate course covers these topics with an emphasis on quantitative methods.

Employers are increasingly looking for candidates trained in process engineering. As such, this course will benefit students from all business disciplines, and focusing on different majors.

Student Learning Objectives/Outcomes

On successfully completing the course, students will be able to:

- Discuss the importance of Lean Six Sigma in quality control
- Distinguish between Lean and Six Sigma approaches
- Apply the DMAIC approach to improving business processes
- Demonstrate analytical thinking and problem solving capability
- Express their ideas and thoughts clearly and concisely

Required Textbooks and Materials

Required Texts

There are no required textbooks

Required Materials

- You need to purchase five cases studies/articles. Use the link below to get the course pack.
  - https://cb.hbsp.harvard.edu/cbmp/access/37304040

This pack includes the following cases.

1. Lean Manufacturing at FCI (A):The Global Challenge
   Cynthia Laumuno; Enver Yucesan
   Publication Date: Jun 25, 2012
   Product #: INS208-PDF-ENG
   21p, English PDF

2. Lean Manufacturing at FCI (B): Deploying Lean at Nantong, China
   Cynthia Laumuno; Enver Yucesan
   Publication Date: Jun 25, 2012
   Product #: INS209-PDF-ENG
   6p, English PDF

3. Apollo Hospitals: Differentiation through Hospitality
   Suhruta Kulkarni; Kripa Makhija; Unnikrishnan Dinesh Kumar
   Publication Date: Jun 1, 2013
   Product #: IMB425-PDF-ENG
   20p, English PDF

4. Innovation Versus Complexity: What Is Too Much of a Good Thing? (HBR OnPoint Enhanced Edition)
   Mark Gottfredson; Keith Aspinall
   Publication Date: Nov 1, 2005
   Product #: 222X-PDF-ENG
   12p, English PDF

5. Operations Management Reading: Managing Quality with Process Control
   Roy D. Shapiro

Publication Date: Sep 10, 2013
Product #: 8020-HTM-ENG
37p, English Web Based HTML

Recommended Readings/Texts

Becoming Lean - Inside Stories of U.S. Manufacturers
Jeffrey K. Liker, Editor
Productivity Press, Portland, Oregon
ISBN 1-56327-173-7

The Six Sigma Handbook, Third Edition
Thomas Pyzdek & Paul Keller
McGraw-Hill
ISBN 978-0-07-162338-4

The Lean Six Sigma Pocket Tool Book
by Michael L. George, David Rowlands, Mark Price, John Maxey
McGraw Hill
ISBN 0-07-144119-0

Textbooks and some other bookstore materials can be ordered online through Off-Campus Books or the UTD Bookstore.

Course Policies

Make-up exams
There are no make-up exams.

Extra Credit
There is no provision for extra credit.

Late Work
Late work will not be accepted or graded.

Class Participation
Students are required to login regularly to the online class site. The instructor will use the tracking feature in eLearning to monitor student activity. Students are also required to participate in all class activities such as discussion board, chat or conference sessions and group projects.

Virtual Classroom Citizenship
The same guidelines that apply to traditional classes should be observed in the virtual classroom environment. Please use proper netiquette when interacting with class members and the professor.

Policy on Server Unavailability or Other Technical Difficulties
The university is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report

any problems to the instructor and also contact the UTD eLearning Help Desk: http://www.utdallas.edu/elearninghelp, 1-866-588-3192. The instructor and the UTD eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

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Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage.

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Course Access and Navigation

This course was developed using a web course tool called eLearning. It is to be delivered entirely online. Students will use their UTD NetID account to login at: http://elearning.utdallas.edu. Please see more details on course access and navigation information.

To get familiar with the eLearning tool, please see the Student eLearning Tutorials.

UTD provides eLearning technical support 24 hours a day/7 days a week. The services include a toll free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service. Please use this link to access the UTD eLearning Support Center: http://www.utdallas.edu/elearninghelp.

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Communications

This eLearning course has built-in communication tools which will be used for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. Visit the eLearning Tutorials webpage for video demonstrations on numerous tools in eLearning.

Interaction with Instructor: The instructor will communicate with students mainly using the Announcements and Discussions tools. Students may send personal concerns or questions to the instructor using the course email tool (or to kannan.ramanathan@utdallas.edu). The instructor will reply to student emails or Discussion board messages within 2 working days. If you do not hear back from the instructor within 48 hours, please contact the instructor again.

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Student Resources

The following university resources are available to students:

UTD Distance Learning: http://www.utdallas.edu/elearning/students/cstudents.htm

McDermott Library: Distance Learners (UTD students who live outside the boundaries of Collin**,** Dallas**,** Denton**,** Rockwall**,** or Tarrant counties) will need a UTD-ID number to access all of the library's electronic resources (reserves, journal articles, eBooks, interlibrary loan) from off campus. For UTD students living within those counties who are taking online courses, a Comet Card is required to check out materials at the McDermott Library. For more information on library resources go to http://www.utdallas.edu/library/distlearn/disted.htm.

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Student Assessments

Grading Information

Weights

Mid-term	40 %
Final	40 %
Best of 4-of-5 quizzes (Each quiz is worth 5%)	20 %
Total	100%

Grading Scale

Scaled Score Less Than	Letter Equivalent
75	F
77	C
80	C+
83	B-
86	B
90	B+
93	A-
all else	A

Accessing Grades

Students can check their grades by clicking "My Grades" under Course Tools after the grade for each assessment task is released.

Option to do a project instead of one quiz

Students have the option to work on a project in lieu of a quiz. (You need to be able to visit the UTD campus regularly to choose this option). The project will be related to some process either in the university or at a local company. The requirements of the project will vary from case to case. Please contact the instructor if you are interested in the project option. Please note that this is not a group assignment: Each student will work individually on one project. The number of available projects is very small – there is no guarantee you will be assigned to a project.

Participation/Discussions

Discussion areas will be set up on the course discussion board for students to ask questions and exchange thoughts and feedback on the topics covered in the course. Although there will be no grades assigned for online discussions, students are strongly encouraged to use the discussion tools to interact with each other and share their learning experiences.

At any time, please contact the Teaching Assistant or the instructor if you have a question.

Online Exams

There are five quizzes each worth 5%; the four-best-of-five quizzes (total 20%) will be counted towards your final grade.

There will be two online exams: Midterm and Final. Each exam has 75 multiple choice questions. The exams are for 90 minutes and must be completed during a specified 2-day time window. Please see the Academic Calendar below. Midterm covers Unit 01 - 16, Final Exam covers Unit 17 -25.

You can access exams by clicking the Exams link on the course menu or see the exam icon on the designated page. Each exam is timed, and the number of attempts allowed within a scheduled time window will be specified. Please read the on-screen instructions carefully before you click "Begin". After each exam is graded and released, you may go to My Grades page and click the score link of the exam to view your graded submission.

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Academic Calendar

5	DATES	TOPIC/LECTURE
1	08/24-08/30	Course Access and Self-Orientation
		Unit 01: Learn & Six Sigma - Introduction
		Unit 02: Lean - Evolution and Steps
		Video: Lean Culture
2	08/31-09/06	Unit 03: Lean - Specify Value - Quality at Source
		Unit 04: Lean - Specify Value - 5S Concepts
3	09/08-09/13	Unit 05: Lean - Specify Value - 5S Implementation
		Video: Five S Factory Makeover
		Unit 06: Lean - Identify Value Stream - Process Mapping
		Video: Mapping Your Value Stream
		Quiz 1 must be completed by 9/30

4	09/14-09/20	Unit: 07 Lean - Identify Value Stream - Why is Inventory bad
		Video: Single Piece Flow
		Unit: 08 Lean - Identify Value Stream - Process Layouts - Part A,B
5	09/21-09/27	Unit: 09 Lean - Identify Value Stream - Types of Processes
		Unit: 10 Lean - Make It Flow - Setup Time Reduction
		Video: Quick Changeover
		Quiz 2 must be completed by 9/30
7	09/28-10/04	Unit: 11 Lean - Make It Flow - Heijunka
		Unit: 12 Lean - Make It Flow - Total Productive Maintenance
		Unit: 13 Lean - Pull - Visual Controls
		Video: Kanban Systems
8	10/05-10/11	Unit: 14 Lean - Pull - Push Pull Systems
		Unit: 15 Lean - Pull – JIT
		Unit: 16 Lean - Always Improving
		Video: Breakthrough Kaizen Events
		Video: The Power Of Small Ideas
9	10/16-10/17	**Midterm Exam**
10	10/19-10/25	Unit: 17 Statistics - Data and Descriptive Statistics
		Unit: 18 Statistics - Distributions, Process Variations & Sigma
11	10/26-11/01	Unit: 19 Six Sigma – Over View
		Unit: 20 Six Sigma - Define - Part A, B
		Quiz 3 must be completed by 11/01
12	11/02-11/08	Unit: 21 Six Sigma - Measure - Part A, B, C
13	11/09-	Unit: 22 Six Sigma - Analyze - Root Cause Analysis - Part A, B

	11/15	
		Quiz 4 must be completed by 11/15
14	11/16-11/22	Unit: 23 Six Sigma - Analyze - Hypothesis Testing
15	11/23-11/29	Fall and Thanksgiving Break
		Quiz 5 must be completed by 11/29
16	11/30-12/06	Unit: 24 Six Sigma – Improve
		Unit: 25 Six Sigma - Control - Part A, B
17	12/11-12/12	Final Exam – to be completed any time on December 12

Summary of Quizzes / MidTerm / Final
Quiz 1 must be completed by 9/13
Quiz 2 must be completed by 9/27
Mid-Term must be completed by 10/17
Quiz 3 must be completed by 11/01
Quiz 4 must be completed by 11/15
Quiz 5 must be completed by 11/29
Final must be completed by 12/12

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Scholastic Honesty

The University has policies and discipline procedures regarding scholastic dishonesty. Detailed information is available on the UTD Judicial Affairs web page. All students are expected to maintain a high level of responsibility with respect to academic honesty. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.

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Course Evaluation

As required by UTD academic regulations, every student must complete an evaluation for each enrolled course at the end of the semester. A link to an online instructional assessment form will be emailed to you for your confidential use.

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University Policies

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

These descriptions and timelines are subject to change at the discretion of the professor

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