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Department of Industrial & Systems Engineering



[Systems Architecting and Engineering \(SAE\)](#)

SAE 551: Lean Operations (3 units)

The study of lean principles and practices as applied to automotive, aerospace and other industries.

For DEN students: This course will be utilizing WebEx services and also be available for video podcast

Fall 2007	Wednesday 3:30-6:10pm
Instructor	Prof. Ted Mayeshiba (mayeshib@usc.edu) Office hours: Wednesdays 6:15P - 7:15P (RTH114) or by appointment either by WebEx or BlackBoard Text: 2135000752 or via email 2135000752@vtext.com Please DO NOT CALL
T.A.	Jared Fortune (fortune@usc.edu) Office hours: Wednesdays 2:00P - 3:30P (GER309)
Six minute video orientation of the WebEx service:	http://den.usc.edu/faculty/WebExdemo08182006.aspx

Introduction and Purposes

- **Objective:** To enhance the students' understanding and appreciation of the importance of lean operation concepts for manufacturing and service enterprises, their resources, the related challenges and problems, and the related tools and technologies. Systems thinking will be emphasized.
- **Description:** Study of various aspects of integrated manufacturing and service enterprises including management, design and production functions, interfaces, and related resources and information systems.
- **Approach:** This course introduces the role of lean thinking in the manufacturing or service (operations) enterprise and its connections with society, economy, and environment. The course will address both theoretical and applied aspects of the topic. Alternative views of lean operations will also be introduced. Ultimately, assessment of learning is provided through the application of learned principles to a process with which the student is familiar and submits as an end of term project. In pursuit of this goal, to the extent possible, the course will use a collaborative learning approach, meaning participation in class is critical to everyone's learning experience. The instructor then functions more as a facilitator to accomplish this goal.

Schedule: (Timing is approximate and subject to change)

Number	Date	Topic	Reading*	Assignment
1	8/29/2007	Intro to course / Overview	Goal, MTCTW	1. Intro. of self 2. Stakeholders 3. VALUE Score
2	9/5/2007	Manf. Overview / Aerospace @ 100	LEV, Part 1	1. MT questions (2) 2. Question from class
3	9/12/2007	Adv. Concepts in inventory systems	LT Part 1 TW, ch 8, 9	1. MT questions (2)
4	9/19/2007	TPS	TW Ch 1-4	1. MT questions (2) 2. TW vs. "Big 3"
5	9/26/2007	TPS	TW Ch. 5, 6	1. MT questions (2)
6	10/3/2007	Ultraquality as a prereq for Lean		1. MT questions (2)
7	10/10/2007	Lean PD		1. MT questions (2) 2. Submit Project Plan
8	10/17/2007	Lean SCM	LT Ch12	Midterm
9	10/24/2007	Lean Analysis Tools (VSM, A3)		Case Study
10	10/31/2007	Change Mgmt	LEV, Part 2	
11	11/7/2007	Alternative Views	LEV, ch. 9, 10; LT ch 9	
12	11/14/2007	SOA		VALUE Scorer (2)
13	11/21/2007	No class scheduled		
14	11/28/2007	Presentations (18)		Final Project Papers / Presentations due 3P.
Monday 2P - 4P	12/17/2007	Presentations (14)		

Course Requirements and Grades

- Required Text:
 - *Lean Enterprise Value*, Murman, et al., Palgrave, 2002, ISBN 0-333-97697-5 (LEV)
 - *Lean Thinking*, Womack and Jones, Simon & Schuster, 2003, ISBN 0-7432-4927-5. (LT)
 - *The Toyota Way*, Liker, Jeffrey K. McGraw-Hill, 2004, ISBN 0-07-139231-9 (TW)
- Reference Text for those who are approaching this course with a limited sense of a technical workplace or context of Lean, it is recommended that these books be read to offer background. Items will be taken from these texts in the course of class, and it may help in understanding these topics. (Optional):
 - *The Goal*, Goldratt & Cox, North River Press, 2004, ISBN 0-88-427178-1
 - *The Machine That Changed the World*, Womack, Jones, and Roos, 1990, ISBN 0-89256-350-8 (MTCTW)
- Other documents will be provided through the class BlackBoard site.
- Term project which concerns the lean operations cycle for a process (either product manufacturing or service delivery). Project should involve a process analysis using Lean Operations tools and principles - instructor approval required)
 - Presentation (Slide presentation given in class - 8 minutes incl. questions)
 - Paper (Specifications on class BlackBoard site)
- Grading breakdown

Homework / Participation	10%
Midterm Exam	30%
Final Project Report	40%
Project Presentation	20%
Total	100%

- Attendance per se is not part of the course grade. However, there are some occasions that assignments, clarifications or modifications to assignments are given in class. Every attempt will be made to post these changes on the "Assignments" section of the class BlackBoard site, however, the student is ULTIMATELY responsible for anything mentioned IN class. If work submitted does not match the criteria as mentioned in class, the work will be graded accordingly.

Discussion Board

There are three sections on the Board on BlackBoard

1. **I don't get it** - if you have a question about course material, post here - you may post anonymously
2. **I don't like it** - if you have a problem with some logistical or presentation portion of the course, please post here - you may post anonymously.
3. **Topic Discussion** - Post comments regarding topical discussion to clarify, amplify or correct other posts.

Technology and technical competence required of the student.

Students are expected to be able to use the following tools in order to upload and download their assignments and pertinent course information.

- Blackboard
- WebEx

Distance Learning / On Campus Learning

Topic	On Campus	Distance (DEN)
Lecture	Active learning available, lecture live	Observation of lecture & activities either synchronously or asynchronously
Communication with instructor / TA	Office hours, email, discussion board, in class discussion	Virtual office hours (WebEx if necessary) by appointment, email, discussion board, WebEx in class discussion if monitoring synchronously
Communication with other students	Discussion board, email, in class discussion	Discussion board, email, in class discussion
Work due -	3 PM day of class	3 PM day of class
Participation	In class feedback, discussion board	In class feedback (chat), discussion board

Standards of appropriate online behavior

The protocols defined by the USC Student Conduct Code must be upheld in all aspects of class. Examples of inappropriate online behavior include but are not limited to:

- Posting inappropriate material
- SPAM to the class
- Online flaming
- Offensive language
- For more information, please visit <http://www.usc.edu/student-affairs/SJACS/>

In the event of technical breakdowns, contact the professor or TA by email or text message.

Statement for Students with 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 me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *Scampus*, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://www.usc.edu/dept/publications/SCAMPUS/gov/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.