University of Southern California

USC

Daniel J. Epstein
Department of Industrial & Systems Engineering

USC Viterbi School of Engineering

Industrial and Systems Engineering (ISE)

ISE495a: ISE 495ax: Senior Design Project (2 units) (RTH105)

Prerequisite / Co-requisite

- Preparation and development of the senior project proposal.
- Not available for graduate credit.
- Senior standing in industrial and systems engineering.
- Open only to industrial and systems engineering students.
- *Corequisite:* (ISE-225 and ISE-310) and 1 from (ISE-382 or CSCI-485)

Fall 2007	Monday - Wednesday 8:30-9:50pm or as scheduled by instructors or teams
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
Instructor	Prof. Raymond Rakhshani (rakhshan@usc.edu) Office hours: Mon / Wed / Fri 11:00A - 12:30P (GER205)

Objectives

This course serves as the experiential capstone in the undergraduate ISE curriculum -- to apply your classroom knowledge to a real project in a real work setting. In the past decade the U.S. manufacturing industries such as automotive and aerospace adopt, implement and evolve “Lean” approaches based upon the Toyota Production System, Six Sigma, and other enterprise change models. Lean has led to significant reductions in cost and time to produce products with superior quality and performance. It is from this framework and perspective, that the student will see how ISE tools can be used to analyze and frame problem statements in real life situations. The course is built around a communication device known as the A3 report. If you are not familiar with this, there is a tutorial on the BlackBoard site under "Course Information". Please avail yourself of this, for it will assist you in this class.

The students in this class will learn:

- To handle difficulties associated with defining and organizing a realistic problem statement

- To manage impediments in obtaining information and approval
- To present and sell ideas to higher-level management
- To convert a project's worth into financial indicators
- To understand the importance of the need for a continuous exchange between engineers, management and employees in solving an existing problem, given a set of constraints
- To gain experience in the organization and management of a technical project including application of industrial engineering tools and methods, time and cost estimates, communication techniques, and project monitoring and follow up
- To learn about the politics of a company and how it impacts a consultant team's progress
- To meet aggressive deadlines in a multidisciplinary team effort
- To improve project-based presentation skills, both in-class and in company settings
- To establish contacts with local industry
- Recognize the need for Lean and its value to an organization
- Describe opportunities for applying lean in their future work assignments

Schedule: (Timing is approximate and subject to change)

Day	Date	Topic	Homework
Wed	8/29/2007	Orientation / Office Lean	Read Intro to Lean
Wed	9/5/2007	Intro self / Intro to Project Sponsors / Intro to Lean	Selection of Project
Wed	9/12/2007	Intro to VSM	Read VSM Fundamentals / HW TBA
Fri	**9/14/2007**	**Simulation**	
Week of:	9/19/2007	Meet with Company	
Wed	9/26/2007	Midterm 1	
Week of:	10/1/2007	Set schedule and contacts with company Visited company at least 1 more time	
Wed	10/3/2007	Lean Eng'r / Lean Supply Chain	Read LE / LSCM
Mon	10/8/2007	Update1 / Peer Eval 1 / Issue defined, bounded	Read Case Study
Wed	10/10/2007	AP Case Study / Variability	
Mon	10/15/2007	Update2 / WBS	
Wed	10/17/2007	Quality	Read Quality
Mon	10/22/2007	Update3	
Wed	10/24/2007	People	Read People the Heart of Lean
Mon	10/29/2007	Update4 / Initial Data Analysis	
Wed	10/31/2007	Midterm 2	
Wed	11/7/2007	Update5	
Wed	11/14/2007	Update6	
Mon	11/19/2007	Dress Rehearsal / Peer Eval 2	
Mon	**11/26/2007**	**Schedule Final Presentation between today and End of Finals**	
Wed	12/5/2007		
Last Day	12/19/2007		

Course Requirements and Grades

- Required Text:
  - *ISE 495 Course Reader*
- This course extensively uses the BlackBoard site. It is expected that students are skilled in uploading and downloading files and other documents regularly provided through the class BlackBoard site.

Grading breakdown

In the real world, work performance is not evaluated based on an academic course grading scale. In the real world, you would be reviewed for current and future accomplishments based on past and present fulfillment of management objectives, with a resultant merit pay increase and/or opportunity for promotion in your company. This evaluation scheme is generally subjective without much opportunity to ask for reevaluation or re-grading of your reports. However, since we are still in academia, the following explains the grading process:

IN-CLASS PRESENTATIONS AND PROGRESS REPORTS

This means clarity, conciseness, quality, visual aids, and participation of group members in their oral Presentations. All group members must participate in each and every presentation (see the schedule for detail). You will have only **10** minutes for each team's presentation. You need to practice and time your presentations extensively prior to these class sessions. Audiovisual equipment reservations are the team's responsibility. At the time of each presentation, you will hand-in a **one-page** progress report and a copy of your slides to the instructor.

A FINAL A3 REPORT, SIGNED SOW & SPONSOR EVALUATION

495a – This report must contain a signed-off statement of work (SOW) for the project. The team is strongly encouraged to include a planned work breakdown structure (WBS), and time-phased project Gantt Chart. Please limit your report to the A3 that you have developed all semester and other figures, tables, appendices, etc (as you deem necessary).

MIDTERM EXAMINATION

Examination will cover class material related to topics and will cover topics as announced in class.

PEER AND SELF ASSESSMENT

You and the other team members will grade each other and you for participation in the team activities. We expect the team members to evaluate each other's involvement and

contribution to the specific assigned activities and/or overall efforts in the project. This assessment is designed to separate the hard-working members from those who do not contribute to the project as much. Your peers will do this with honesty and sincerity throughout the semester. Read the evaluation form very carefully and use it twice during the semester. The peer evaluation due dates are in the Course Assignment chart.

An important part of an engineer's duties, especially as he/she advances, is to assess the performance of other people. At first this is an uncomfortable experience. This course provides the opportunity to get some experience in this part of your professional development. The instructor will evaluate your evaluations of your peers and how well you are able to critically evaluate the performance of others in respect to team performance.

INSTRUCTOR ASSESSMENT

The instructor will support, monitor and evaluate your performance during the semester. This is an individual assessment which includes items such as on-time presence at meetings, project organization and work ethics, project contribution, feedback to other team members, idea generation and team leadership, conflict resolution, professional dress and bearing, ability and desire to generate group cohesiveness, etc.

A summary of the grading distribution for both 495a is included in the following table.

ISE 495a Grading Distribution

495a	%
Progress Reports (4x5%)	20
Midterm (10% x 2)	20
Peer Evaluations	
• First	5
• Second	10
Final Report /Presentation (client)	30
Instructor's evaluation	15
Total	100

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/.