SYLLABUS

ISE 527: Quality Management for Engineers

Instructor: Lynne P. Cooper, Ph.D.
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Summer 2018: June 27 – August 7, 2018
Mondays & Wednesdays, 11:00 pm – 2:10 pm

NOTE: This is a preliminary draft to aid students in deciding whether to take this course. A final version of the syllabus will be published prior to the start of classes.

Course Sections: 31747 (for DEN students) and 31547 (for on-campus students), 3 Units

Prerequisite: Graduate student standing in engineering or related discipline, or special approval by Instructor is required. Basic probability & statistics. Familiarity with Excel.

Class Location: USC Olin Hall of Engineering (OHE), Room **100C**

Office Hours: Office Hours: GER 309A, 213-740-0867

- On Campus: Mondays & Wednesdays, TBD
- Virtual Office Hours: by appointment only
- **May need to call for access if building or GER 309 Lab locked**
- For emergencies only: 208-217-0308

Course Producer: TBD

Required Text Books: *Managing for Quality and Performance Excellence (10th Edition)*
James R. Evans and William M. Lindsay ISBN: 978-1305662544
Note: either physical or e-book versions are acceptable.

When contacting the Course Producer or Instructor via email, please start your subject with "ISE527:"

Course Description:
"*Inspection does not improve the quality, nor guarantee quality. Inspection is too late. The quality, good or bad, is already in the product. As Harold F. Dodge said, "You can not inspect quality into a product*." – Deming, *Out of the Crisis,* p.29

Industrial and systems engineering is concerned with the design, improvement and installation of integrated systems of people, materials, information, equipment and energy. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design, to specify, predict, and evaluate the results to be obtained from such systems[1]. Quality Management uses the knowledge and skills intrinsic to ISE to help organizations "do the right things right." This course covers the history, evolution, philosophical underpinnings, and methods required to develop and execute a modern approach to Quality Management.

General Note on Workload:

As a rule of thumb, for a graduate level class the workload outside of class should be ~2-3 hours per unit. Therefore you are expected to spend ~6-9 hours each week for this course *outside of class*. While working on a team is not required for this class, it is encouraged because the time spent discussing assignments, reconciling different perspectives and interpretations, and negotiating the end product will greatly improve your understanding and retention of the material.

[1] Definition from Institute of Industrial and System Engineers, http://www.iise.org/details.aspx?id=282

Note: because this is an accelerated summer session, it is absolutely critical that students keep on top of the reading and assignments. Late work will not be accepted.

Course Components:

- **Classroom Lecture**

  Twice weekly lectures will discuss the relevant theories, methodologies, processes, tools, and practice of quality management. Reading assignments from the textbook and supplemental reference resources will be given throughout the session. All students are encouraged to study these reading assignments as a "preview" for the lectures and to have the necessary background for the cases and examples discussed in class. You are expected to be able to learn vocabulary, definitions, and formulas from the book. Lectures will therefore focus on the concepts in practice. A combination of power point slides and in-class lecture notes will be available on the DEN site for student review.

  All students are encouraged to bring their computers to class and participate in a live chat. The TA and/or instructor will monitor the chat throughout the lecture. The background chat provides a way for students to share information in real time, post questions and insights for later discussion, and connect with their fellow students. In the past, the chat interaction between the DEN students and in-class students has lead to a lively, dynamic and much more enjoyable learning environment for everyone.

  Off-campus students are encouraged to watch the live web castings of classroom lectures whenever possible through the DEN systems (e.g., WebEx). Live lectures are recorded for later review by all students. Off-campus students can connect by audio via the DEN system, or participate in background chat via WebEx. For technical questions regarding remote lecture/question participations, off-campus students should consult with DEN technical staff directly.

  While all students are encouraged to participate in the "live" class, real-time attendance is not required.

- **Discussion Board/Course Participation [Extra Credit]**

  The course Discussion Board will be used to post questions and answers about assignments, readings, or other items of interest to the class. Students are also encouraged (but not required) to submit discussion questions that go beyond the material covered in class, e.g., relate in-class topics to personal work experiences, post an interesting article. The discussion board will NOT be graded, however, **meaningful** participation in the discussion board may be taken into consideration for extra credit.

  Meaningful interactions outside of the Discussion Board may also be taken into consideration for extra credit, for example in-class/chat participation, email exchanges, office hours.

- **Weekly Quizzes [TBD points]**

  Quizzes are designed to reinforce vocabulary and concepts discussed in class and in the mandatory readings. Quizzes covering material from the previous week will be posted following class on Monday and are due by the start of the next class on Wednesday (see Course Schedule). Quizzes are **open book, open notes, have a 15-minute time limitation, and will be given on-line.** They must be done individually (collaboration not allowed).

- **Homework Assignments [TBD points]**
  Homework will be assigned on Thursday and be due the following Tuesday. Homework assignments will include case analysis, problem sets, and other exercises as reflective of the material covered in class. A team of no more than 3 people, with prior approval of the instructor, may complete homework assignments. All team members will receive the same grade and will be responsible for individually submitting a brief evaluation of their team members as part of the assignment.

- **Final Exam [TBD points]**

The final exam will be held during the final class and must be taken either on campus or in a proctored location. The exam will cover concepts discussed in class, covered in the homeworks, or discussed on the Discussion Board. A "reference sheet" will be provided outlining key models and concepts, formulas and variable definitions for use during the exam. Students requiring accommodations should provide the required DSP paperwork as early in the course as possible.

Course Website:
Students' learning of this course is supplemented by a specially designed course website on the DEN D2L instruction system (http://www.uscden.net). All registered students have access to this website. The course website structure is implemented to support the specific organization of the course instruction as described in this syllabus. All students should browse around the entire site to familiarize themselves with various areas and functions of this course website.

The course website will contain the following information:

- News -- important announcements of this course (check it frequently); should be on your course home page
- Course Documents – Syllabus, required readings, supplementary materials and links to external resources
- Organized by Assignment:
  - Description of Homework assignments
  - Evaluation guideline
  - File template (as appropriate)
  - Either Dropbox, Discussion Board, or Quiz for submitting assignments
  - Discussion Board specific to the assignment
- Organized by week:
  - Course Lectures -- video files of each lecture
  - Course Presentation Package
  - Any Lecture-generated material
  - Chat transcript
  - Weekly discussion board
  - Quiz (as appropriate)

Assignment Submission Policy:
Specific submission instructions will be provided for each assignment, including file-naming conventions. Late assignments will be accepted only with permission of the instructor and will incur a penalty (which can be waived by the instructor when there are extenuating circumstances, e.g., medical emergencies, work-related travel).

Course Grading:

Assignments are worth the following points with following grade assignments:

Assignment	Points
Homeworks	500
Quizzes	300
Final	200
Participation/Extra Credit	
Total	1000

A	≥ 950 points
A-	≥ 920 points
B+	≥ 890 points
B	≥ 860 points
B-	≥ 830 points
C (or worse)	<800 points

These are hard cut-offs. Final class grade will be based on the total points you have earned – no rounding up.

Statement on Academic Conduct and Support Systems

Academic Conduct
Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* http://equity.usc.edu or to the *Department of Public Safety* http://adminopsnet.usc.edu/department/department-public-safety. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* http://www.usc.edu/student-affairs/cwm/ provides 24/7 confidential support, and the sexual assault resource center webpage http://sarc.usc.edu describes reporting options and other resources.

Support Systems
A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* http://dornsife.usc.edu/ali, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* *http://emergency.usc.edu* will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

Course Schedule:

THIS IS A WORK IN PROGRESS AND WILL CHANGE! Use as a reference for type of material to be covered and general assignment schedule

#	Date	Due	Readings	Topics	Work assigned & Due date
1	Wed 6/27		**SYLLABUS** **Chapter 1**	Overview of Class Introduction to Quality Foundations of Quality Management Example Case Analysis	**Student Intro**, Due: Fri 6/29
2	Mon 7/2		**Chapter 2**	Foundations (cont.)	**Quiz 1 posted,** Due Fri 7/6 (due to 4th of July) **Homework 1**, posted, due 7/9
3	Wed 7/4	**Q1** (7/6)		NO CLASS – 4th of July	**Last day to Drop Class w/Refund: 7/5**
4	Mon 7/9	**HW 1**	**Chapter 3**	Customer Focus	**Quiz 2 posted**
5	Wed 7/11	**Q2**	**Chapter 4**	Workforce Focus Process Mapping Basics	**Homework 2 assigned**
6	Mon 7/16	**HW 2**	**Chapter 5**	Process Focus	**Quiz 3 posted**
7	Wed 7/18	**Q3**	**Chapter 6**	Statistical Methods in QM	**Homework 3 assigned**
8	Mon 7/23	**HW 3**	**Chapter 6** **Chapter 7**	Stat Methods (Cont.) Design for Quality	**Quiz 4 posted**
9	Wed 7/25	**Q4**	**Chapter 8**	Process Measurement	**Homework 4 assigned**
10	Mon 7/30	**HW 4**	**Chapter 9** **Chapter 10**	Six Sigma & Lean Baldrige Framework	**Quiz 5 posted** **Last day to Drop Class w/a "W": 7/30**
11	Wed 8/1	**Q5**	**Chapter 11** **Chapter 12**	Strategy Knowledge Management Review for Final Exam	**Quiz 6 posted**
12	Mon 8/6	**Q6**	**Final Exam**	Closed book, closed notes (reference sheet will be provided)	