# ISE 515: Engineering Project Management (31505)

**Summer 2016, Monday 2:30pm – 5:40pm (OHE 120)**


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| **Instructor:** | **Dr. Kim Peters** | Phone: | 213-740-0867 (during office hours) |
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**Course Description**

Increasingly, businesses regularly use project management to accomplish unique outcomes with limited resources under critical time constraints. This course addresses project management from a management perspective, the project manager in particular with a basic exposure to the tasks and challenges which affect most projects. Imagine managing globally distributed teams while adhering to scope, budget, time constraints while balancing project risks and rigorous quality demands. This course will provide you the fundamental management tools as well as the behavioral skills to systematically manage projects for all types of projects, be they public, business, engineering, information systems, or other.

The course objectives are:

- Acquire and fine-tune the skills and techniques for the four phases in the life cycle of a typical project: initiating, planning, executing and closing
- Gain an understanding of essential principles associated with effective project management and how to apply these principles in the day-to-day business environment
- Familiarize yourself with commonly available computer software tools
- Understand and apply methods for solving and avoiding common difficulties associated with project management

The subject matter will be covered with lectures, discussions, case studies, reading the text, individual research, and the preparation of a comprehensive project management plan in a team environment.

**Course Materials**

**Required text:**

*Project Management: A Managerial Approach*, 8th Edition, Meredith, Jack R. and Mantel Jr., Samuel J – ISBN-13 978-0-470-53302-4

**Reference material(s):**

*A Guide to the Project management Body of Knowledge*, 4th Edition, (PMBOK Guides) [paperback], Project Management Institute (author) ISBN-13 978-1933890517

*Project Management Toolbox: tools and techniques for the practicing project manager*, Dragan Z. Milosevic – ISBN-0-471-20822-1

*Project Management Tools and Techniques, A Practical Guide*, by Carstens, Richardson and Smith. Publisher: CRC Press; ISBN: 978-1-4665-1562-8

*Quantitative Methods in Project Management,* by John C. Goodpasture. Available at USC's bookstore.

***Software:* Microsoft ® Project**: The course will utilize Microsoft Project software.

- Copies of Microsoft ® Project are available on the ISE laboratory computers in GER 309 (open M-F 8 to 5).
- A 60-day trial of Microsoft ® Project can be downloaded from Microsoft's website.
- It may be downloaded @ http://viterbi.usc.edu/resources/vit/services/dreamspark.htm.

**Online access to materials**

The assignments, handouts, lecture notes, team rosters and other class information will be posted on D2L, Desire2Learn (https://courses.uscden.net). All students are expected to be able to access information from the on-line website.

**Class project**

The class project consists of a group project where project management skills will be demonstrated and evaluated. Students will be provided with a project where all the elements of project planning are explicit and clearly defined. The class project will be graded based on the class presentation, final report and a 360° team rating. Each project team will maintain a team notebook which contains PM tools to track the project and maintain project configuration management.

**Grading**

*Exam 1: 20% (individual).* The midterm (6/27/2016, *tentative*) will include all the materials covered until 6/20/2016. This date will mark the end of the first part of the course.

*Exam 2: 30% (individual).* The final exam (8/1/2016, *tentative*) will be comprehensive of all the course materials, with an emphasis on the second part of the course.

*Assignments: 10% (group).* Homework must be turned in at the specified due date or via D2L prior to the beginning of class. No late assignments will be accepted unless an extreme circumstance can be proven.

*"Tool" Presentation: 10% (group).* A member(s) of the project team will present their work for each given period.

*Project: 30% (group).* The final report is due on 8/1/2016 (*tentative*).

- 50%: Project performance (management quality and performance relative to triple constraint)
- 12.5%: Preliminary design review (PDR)
- 12.5%: Critical design review (CDR)
- 25%: 360 degree peer evaluation: creativity, quality, and etc.

*Participation/Behavior:* Notable consideration will be given for class participation and behavior (in person or via D2L). *DEN* students' participation will be considered based on D2L interaction and the discussion forum.

**Quality Expectations**

All assignments and presentations should be completed with the upmost professionalism. This means that all the homework, project, papers and other materials must be prepared using a word processor, spreadsheet, PowerPoint or any other relevant computer software (e.g. MS Project).

All work shall have cover page with:

1. Your full name
2. Your group member names with last names in alphabetical order (group assignments)
3. Document title
4. Document date
5. File name must conform to the following: **group# _assignment#.ext** (doc, xls. mpp, ppt, etc.)

Presentations should be prepared in PowerPoint and should be delivered in time allotted. If any group is not prepared to present, all members of that group will be adversely affected in grading and evaluation.

**Attendance**

Regular class attendance is strongly encouraged and recommended. You are responsible for all material presented in the lecture whether you are present or not. Electronic devices such as cell phones, pagers, and alarms should be turned off or set to silent mode throughout class. ***Note**: Attendance will be taken for the first two weeks of class, after which an honor code for you as young adults will be adhered to.*

**Outreach *DEN* Students**

This course is conducted in outreach format, meaning, it is available to off-campus students via video recording and streaming. Students in on-campus or off-campus receive the same instruction and perform the same tasks.

**Important Dates**

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| May 18 | Classes Begin |
| May 30 | Memorial Day |
| June 27 | Exam 1 (*tentative*) |
| July 4 | Independence Day |
| Aug 1 | Exam 2 (*tentative*) |
| Aug 8 | Project CDR Evaluation |
| Aug 9 | Classes End |

**Language Support Systems**

USC provides support for students who need help with scholarly writing. 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.

**Emergency Services**

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 D2L, blackboard, teleconferencing, and other technology.

**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 the professor(s) 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.

**Academic Integrity**

USC seeks to maintain an optimal learning environment. The Department of Industrial and Systems Engineering adheres to the University's policies and procedures governing academic integrity as described in *Scampus*, the Student Guidebook. 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. *Scampus*, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A. 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*. All students are expected to understand and abide by these principles, as they will be strictly enforced throughout the semester.

***Note**: This syllabus is subject to change.*

**Course Schedule** (*Note: This schedule is subject to change.*)

| W | Date | Assignments | Topics | Readings |
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| 2 | 5/23/16 | Asn#1 due | Part 1: Project Initiation<br>• Introduction<br>• Triple Constraint<br>• MS Project Introduction<br>*Discussion: Introduction of group project* | Chapters 1 & 2 |
| 3 | 5/30/16 | Asn#2 Due | ***Memorial Day – no class*** | Chapters 2 & 3 |
| 4 | 6/6/16 | *Asn#3 due* | Part I: Project Initiation<br>• Project Selection and the Project Manager<br>• Managing Conflict<br>• The Project in the Organizational Structure<br>*Discussion: Introduction of Project Team Coordinating Teamwork* | Chapters 3, 4 & 5 |
| 5 | 6/13/16 | Asn#4 due | Part II: Project Planning<br>• Project Activity<br>• Project Risk Planning<br>*Discussion: Risk Activity Sheet* | Chapters 5 & 6 |
| 6 | 6/20/16 | Asn#5 due | Part 1I: Project Planning<br>• Work Breakdown Structure<br>• Budgeting: Estimating Costs and Risks<br>*Discussion: Project Preliminary Design Review (PDR)* | Chapters 6 & 7 |
| 7 | 6/27/16 | | ***Exam 1***<br>Part II: Project Planning<br>• Project Scheduling<br>• Network Scheduling Techniques | Chapter 8 |
| 8 | 7/4/16 | | ***Independence Day – no class*** | Chapters 8 & 9 |
| 9 | 7/11/16 | Asn#6 due | Part II: Project Planning<br>• Project Critical Path<br>• Project Resource Allocation<br>*Discussion: Resource Leveling* | Chapters 8 & 9 |
| 10 | 7/18/16 | Asn#7 due | Part III: Project Execution<br>• Project Monitoring<br>• Project Control<br>• Project Auditing<br>*Discussion: Earned Value Analysis* | Chapter 10 & 11 |
| 11 | 7/25/16 | Asn#8 due | Part IV: Project Termination<br>• Project Termination Process<br>• Post Project Probe<br>*Discussion: Occupational Safety & Ergonomics* | Chapters 12 & 13 |
| 12 | 8/1/16 | Group project Final Report Due | ***Exam 2 (CDR)***<br>*Discussion: Critical Design Review (CDR)* | Chapter 13 |
| 13 | 8/8/16 | Final Presentation | ***Final Project CDR Evaluation***<br>*Discussion: 360 Degree Group Evaluation* | Peer Evaluation |

- Project management process – general understanding of elements
- What is the distinction between management and project management
- Difference between projects, programs and business processes
- Conceptual idea of the triple constraint; understanding what we mean by cost, schedule and performance
- Performance, schedule and cost issues – origin and avoidance
- Why does one start a project?
- Scope statement-elements, meaning and application
- Understand project initiation within context of internal and external customers
- Statement of work – what is it/application
- Elements of proposal process
- Requirements and specifications
- Contract types
- Program management plan
    - What is it
    - Elements
    - Planning issues
    - Benefit to PM
- Role of triple constraint in PM plan
- WBS
    - What is it
    - Meaning of product oriented, deliverable based
    - Features of a good one
    - Comparison of functional based vs. product oriented deliverable
    - Ability to construct one
- Task size guidelines
- WBS dictionary – be able to write one
- Network diagrams
    - Understand the different types
    - Ability to translate
    - What is it
    - Be able to draw and status
- Scheduling options
    - Understand types and advantages/disadvantages
- CPM and PERT
    - Definition
    - Identification and usage
- Slack and float
    - Definition
    - Identification and usage
- Cost elements
- Resource constraints
    - Identifying them
    - Effect on plan
    - Strategies to overcome
    - Solve simple projects with network concepts
- Accelerating projects, "crashing"
- Risk
    - What is it
    - Types of risk
    - Risk statement
    - Process to manage
- Risk management plan – ability to write one
- Risk mitigation strategies – ability to identify them for various problems
- Effect of team size and project duration on project performance
- Expectations of the organization on the PM
- Skills needed by a PM
- Conflict resolution
- Measurements to show performance against the plan
- How do you make "% complete" work
- Program reviews – why, types
- Task review – why, content
- Tracking with cost vs. time upside/downside
- Earned value terminology, definition, usage, upside/downside, calculations
- Variances – definitions, calculation
- Change control
- Scope change control – elements, plan
- Completing a project - elements

***Note**: This syllabus is subject to change.*