# **Syllabus – ISE 515: Engineering Project Management**

Fall 2016, Monday 3:30pm – 6:10pm OHE 100C

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## **Course Description:**

This course will provide you with a basic exposure to the tasks and challenges facing today’s projects and in particular, those of the project manager. 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 with the tools and – as important – behavioral skills to systematically manage projects for profit and non-profit organizations.

The course objectives are:

* Acquire and fine-tune the skills and techniques for the 4 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 using lectures and discussions, case studies, text reading, individual research, group discussion and preparation of a comprehensive project management plan in a team environment.

## **Materials:**

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

*A Project Manager’s Book of Forms*, by Cynthia Stackpole. ISBN**:** 978-1118430781

*Project Management Body of Knowledge (optional):* Available from the university bookstore or from the Project Management Institute website (<http://www.pmi.org/>) for PMI members.

*Software:* Microsoft ® Project: Three options:

* USC’s virtual servers. Instructions for downloading are [here](http://viterbi.usc.edu/resources/vit/services/vdi.htm).
* 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](http://technet.microsoft.com/en-us/evalcenter/ee404758).

## *Case Studies HBR Sourced (*[*http://hbr.org/*](http://hbr.org/)*). Instructions for* [*course pack*](http://cb.hbsp.harvard.edu/cbmp/access/51296572) *download are in Blackboard.*

[9-303-003: The SK-II Globalization Project Case](http://hbr.org/search/9-303-003/)

[910D16 American Constructors Inc.](http://hbr.org/search/910D16/)

[600021: Learning from Projects](http://hbr.org/search/600021/)

[190128: Turner Construction Company](https://cb.hbsp.harvard.edu/cbmp/product/190128-PDF-ENG)

[9-483-098: Mat McGregor (A)](http://hbr.org/search/9-483-098/)

## **Blackboard (Online access to materials):**

The assignments, handouts, lecture notes, team rosters and other class information will be posted in <https://courses.uscden.net>. All students are expected to be able to access information from here.

## **Class project:**

The class project consists of a group project where project management skills will be demonstrated. The 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. The groups will be created during the second week of class.

## **Grading**

*Participation: 25%.* This includes class participation whether in person, via Webex, using the discussion board or contributing within your individual teams. Grading will be based on the impact of your participation – this means the quality and reach of your contributions. For example, an email to the Professor may clarify a question that you may have, however, an insightful comment in the discussion board will clarify questions other students may have. The latter is encouraged and preferred.

*Homework assignments and case studies: 25%.* Homework must be turned in at the specified due date or via DEN prior to the beginning of class. No late assignments will be accepted. One homework assignment (lowest grade) may be dropped.

*Midterm: 15%.* The midterm will cover all the materials covered until 10/10/2016 (inclusive). This date will mark the end of the first part of the course.

*Class Project: 30% (divided into 3 parts).* The final report is due on 11/28/2016.

*Final Exam: 5%.* The final exam will be comprehensive of all the course materials, with an emphasis on the second part of the course and guest lectures. The university schedules the final exam date and time. Please do not request an alternate date, as none can be accommodated.

## **Attendance:**

Regular class attendance is strongly encouraged and recommended, but not mandatory.

*Note: Attendance will be taken for the first two weeks of class. If a student fails to attend during this period, the student will be dropped from the class without further contact.*

## **Quality Expectations:**

Professional deliverables are expected at all times, both for content and presentation. This means that all the homework, project, papers and other artifacts must be prepared using a word processor, spreadsheet or any other relevant computer software (e.g. MS Project). Make sure all documents have at a minimum:

* Your name and/or your team member names
* No spelling mistakes
* Date and document title
* Professional analysis, conclusions and/or recommendations

## **Academic Integrity:**

The Department of Industrial and Systems Engineering adheres to the University’s policies and procedures governing academic integrity as described in SCampus. Students are expected to be aware of and to observe these academic integrity standards, as they will be strictly enforced throughout the semester.

## **Course Schedule:**

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|  | Date | Milestones | Topic | Reading Requirements |
| 1 | 8/22/16 |  | Introduction  Discussion: What is a project? 🡪 Triple constraint |  |
| 2 | 8/29/16 |  | Starting a project  The work breakdown structure (WBS)  Class project release | [Business Acumen as an Integral Part of Project Management (Part I)](https://www.projecttimes.com/articles/business-acumen-as-an-integral-part-of-project-management-part-i.html)  Chapters 1-4 |
| 3 | 9/5/16 | [student survey](https://sites.google.com/a/kre-associates.com/ise-515-student-background-survey/) due on 9/02/16 | ***Labor day – no class*** | Chapters 5-7 |
| 4 | 9/12/16 | Homework #1 due | *Discuss The SK-II Globalization Project*  Time estimating  Scheduling tools | Chapters 8-9  T[he Mythical Man Month](https://courses.uscden.net/d2l/le/content/10097/viewContent/101989/View) |
| 5 | 9/19/16 |  | Resource allocation  Creating the project budget | Chapter 9, 19  Chapter 10 |
| 6 | 9/26/16 | Homework #2 due | *Discuss American Constructors, part 1*  Creating a viable project plan | Chapter 12-13 |
| 7 | 10/3/16 | Class project part 1 due | *Discuss class project part 1*  Accelerating a project  Preparation for the Midterm | [Accelerating a project.pdf](https://courses.uscden.net/d2l/le/content/10097/viewContent/101991/View) |
| 8 | 10/10/16 |  | **Midterm Exam** |  |
| 9 | 10/17/16 | Homework #3 due | *Discuss American Constructors, part 2*  Risk and contingency | Chapters 11, 22 (risk) |
| 10 | 10/24/16 |  | Project Execution:   * Key Performance Indicators * Tracking project status * Handling project changes   Project Reviews, Techniques to Influence Project Outcome (Project control, Monitoring tools) | Chapter 14  Chapter 16  Chapter 17  Chapter 18 |
| 11 | 10/31/16 | Class project part 2 due | *Discuss class project part 2*  [Planning and Execution: Heaven Sent](https://youtu.be/R9_RPhMc2Mo?t=2) | Chapter 15 |
| 12 | 11/7/16 |  | Guest Lecture: Microsoft |  |
| 13 | 11/14/16 | Homework 4 due | Completing a project, Learning from Projects  Conflict Resolution, Earned Value |  |
| 14 | 11/21/16 |  | Guest Lecture: Leadership  (alt. Managing a Project in Crisis) |  |
| 15 | 11/28/16 | Class project part 3 due | Class project presentations  Review course materials, answer questions |  |
| 16 | 12/5/16 |  | **Study Days** |  |
| 17 | 12/12/16 | **\*\*\*Final Paper Due at 7pm \*\*\*** | | |

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| Assignment Name and Description |
| Homework #1:   * Case Study: 9-303-003 The SK-II Globalization Project (team assignment) * Complete [student survey](https://sites.google.com/a/kre-associates.com/ise-515-student-background-survey/) by 9/02/2016 |
| Homework #2:   * American Constructors case study, part 1 (team assignment) |
| Homework #3:   * American Constructors case study, part 2 (team assignment) |
| Homework #4:   * Learning From Projects Paper (team assignment) – include a status report of what the project looks like if it were to end now. |
| Final Exam:   * Turner Construction (team assignment) |
| Class Project (part 1: 10% of grade) |
| Class Project (part 2: 10% of grade) |
| Class Project (part 3: 10% of grade) |

## **Disability Services and Programs:**

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 the TA as early in the semester as possible. DSP is located in STU 301 and is open 8:30am – 5:00pm Monday through Friday. The phone number for DSP is 213.740.0776.

**Note: This syllabus is subject to change as announced in class.**

ISE 515 – Engineering Project Management Study Guide

* 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
* TESTETIL diagrams
  + 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- understanding the elements