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Syllabus – ISE 515: Engineering Project Management
Spring 2020, Tuesday 4:00pm – 6:40pm GFS109

Instructor	Herag Haleblian	Phone	626.399.3794
Office	GER242A	E-mail	Herag.Haleblian@usc.edu
Office Hours	Tuesdays 3:00 – 4:00pm **or** 6:40pm – 7:30pm	Twitter	@HeragJack
TA	Swathi Shetty	Phone	213.298.5658
Office	GER242B	E-mail	swathish@usc.edu
Office Hours	Fridays 10-Noon		

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 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.

This course is also an elective option for the Technology Commercialization Certificate Program at the USC Marshall School of Business.

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: 9781119393986
- *Case Studies Harvard Business Review Sourced (http://hbr.org/)*. HBS CoursePack TBD
- *Software:* Microsoft ® Project
  - o via MyDesktop: My Desktop Link
  - o via Microsoft (Windows only) Microsoft SW Link
- OPTIONAL: *Project Management Body of Knowledge:* Available from the university bookstore or from the Project Management Institute website PMI Student Membership Link.

Course Schedule:

	Week	Milestones	Topic	Reading*
1	1/14/20		1) Class Introduction 2) Projects: Definition and Background	Chapters 1-2 Elon Musk Article re PM
2	1/21/20	Student Survey due 1/24	3) Starting a Project: Business Case Tech Commercialization Certificate 3b) RFP & Contracts	Chapters 3-5 Business Acumen Article
3	1/28/20	HW #1 due 1/28	Discuss *Henry Tam & the MGI Team* Team Assignments - Class Project Kickoff **Guest Lecture: Andrew Yeghnazar**	Chapters 6-8
4	2/4/20		4) Requirements/Work Breakdown Structure (WBS) 5) Project Schedule – Activity Identification	Chapters 9, 19 10 Best PM Tools Video
5	2/11/20	HW #2 due 2/11	6) Activity Time Estimation **Guest Lecture: TBD**	Chapter 10, 20
6	2/18/20		***Microsoft Project – class exercise*** 7) Project Budget w/ Examples Sponsor Meetings (10 minutes per team x 3)	Chapter 11-13, 22
7	2/25/20	HW #3 due 2/25	8) Resource Planning & Organization 9) Project Plan - Accelerate a Project Sponsor Meetings (10 minutes per team x 3)	Managing with a Business Architect's Mindset (Part II) Project Team Prezi
8	3/3/20		10) Risk Management ***Project Management Simulation* exercise** Midterm Exam Review	Chapters 14 Business Acumen Article
9	3/10/20		**Midterm Exam**	
	3/17/20		**Spring Recess**	
10	3/24/20	Class Project Pt#1 due 3/24	11) Project Monitoring – Controls/Quality *Discuss Midterm Exam/ Tools / Business Architect Mindset* 12) Project Execution – Change Control 13) Program Management Office (PMO)	Chapters 16-18 Chapters 24
11	3/31/20	**HW#4 - Fri 4/3**	14) Effective Writing / Presentation **Guest Lecture: TBD**	
12	4/7/20		15) Conflict Resolution – Negotiations 16) Organization Change Management (OCM)	5 Steps from 12 Angry Men
13	4/14/20	Class Project Pt#2 due 4/14	17) Earned Value 18) Project Closure 19) Leadership	Chapters 15, 23
14	4/21/20		LAFC Tour & Discussion **Mark Morris, SVP Corporate Partnerships**	
15	4/28/20	Class Project Pt#3 due 4/28	Class Project presentations Final Exam Review/Course Eval in Class (15 minutes)	
			Study Days: 5/2-5; **Final Exam:** Tue 5/12 4:30-6pm	

*Note: all Chapter reading from the Project Management Tools and Techniques book

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

Assignment Summary:

Homework #1:
• Case Study: Henry Tam & the MGI Team (Team Dynamics) (individual assignment)
Homework #2:
• Case Study: TBD – Business Case or General PM (***team*** assignment)
Homework #3:
• Case Study: American Constructors case study, part 1 (individual assignment)
Homework #4:
• Case Study: American Constructors case study, part 2 (***team*** assignment)
Class Project:
• Hyperloop Project – 3 parts

Contents	PPT
Module 1: Introduction & Initiation	
Intro to Class and Management	#1
Intro to Project Management	#2
Starting a Project:	
Business Case	#3a
RFPs and Contracts	#3b
Work Breakdown Structure	#4
Requirements	#4
Module 2: Planning & Estimation	
Project Schedule - Basics, Tools	#5
Estimation	#6
Project Budget	#7
Resource Planning & Organization	#8
The Project Plan	#9
Project Acceleration	#10

Module 3: Execution & Monitoring	
Risk Management	#11
Project Execution:	
Project Controls	#12a
Project Monitoring, KPIs	#12b
Project Quality	#12c
Project Change Control	#13
Program Management Office	#14
Module 4: Closing & Special Topics	
Organizational Change Management	#15
Effective Communication	
Conflict Management/Negotiations	#16
Earned Value	#17
Project Closing/Lesson's Learned	#18
Leadership	#19

Student Portal: Blackboard (Online access to materials):

The assignments, handouts, lecture notes, team rosters and other class information will be posted on Blackboard. 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 Peer review rating. The groups will be created during the second week of class.

Grading

Participation/Simulation/Peer Reviews: 20%. This includes class participation whether in person, 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. Simulation will not hurt grade but top 5 scorers will automatically get extra points.

Homework assignments/case studies: 30%. Homework must be turned in at the specified due date prior to the beginning of class. No late assignments will be accepted. One homework assignment (lowest grade) may be dropped.

Midterm: 10%. The midterm will cover all the materials covered during the first part of this course.

Class Project: 30% (part 1=6%, part 2=12%, part 3=12%)

Final Exam: 10%. may be in the form of a team case study

Attendance:

Regular class attendance is not mandatory but is strongly encouraged and recommended as it will significantly enhance your learning experience and impact your participation grade.

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
- Date and document title

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.

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.

SE 515 – Engineering Project Management Topics

- 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?
- Understand project initiation within context of internal and external customers
- Statement of work – what is it/application
- Elements of proposal process
- 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
- Network diagrams
  - Understand the different types
  - Ability to translate

- Scheduling options
  - Understand types and advantages/disadvantages
- Slack and float
  - Definition
  - Identification and usage
- Cost elements
- Resource constraints
  - Identifying them
  - Effect on plan
  - Strategies to overcome
- 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