ISE 544: Management of Engineering Teams

Summer 2014 —Mon, Wed—6:00-9:10pm

Location: RTH 105 and DEN@Viterbi

Instructor: Theodore Mayeshiba

Office: GER216C

Office Hours: By appointment. Usually 1 hour before class.

BlueJeans (preferred): Follow link on Blackboard site

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Teaching Assistant: Yalda Khashe

Office: GER309a (loft)

Office Hours: By appointment

BlueJeans (preferred): Follow link on Blackboard site

Contact Info: khashe@usc.edu

IT Help: https://www.uscden.net/webapps/DEN-DEN%20Tools-bb_bb60/links/help.jsp

Hours of Service: 8:00 am - 10:00 pm, Mon-Thu, 8:00 am- 8:00 pm Fri, weekends closed

Contact Info: (213) 821-1321 Email: webclass@usc.edu

Course Description

The course is designed to study the management of engineering teams. The review of group decision-making, motivation, leadership, infrastructure requirements, performance measurement, team diversity, conflict, and integration of knowledge will be studied to compare and contrast with the texts and other reading material assigned.

This course will provide the student with several foundational aspects to prepare or enhance skills that are expected of those leading technical engineers.

These elements will include:

- Understanding makeup of teams; diversity and cultures, team roles, importance and contributions.

- Management tools to drive performance; infrastructure requirements to enhance team function, measurement, virtual team considerations, accountabilities, facilitation.
- Leadership traits for enhancing teams; situational leadership, styles, understanding conflict, identifying and resolving team dysfunction.
- Self-understanding; emotional intelligence, value to organization, value to your subordinates.

The Course

Overview

In December 1966 the launch date of Apollo 1 was announced as 21 February 1967, at which time a press conference was held and the crew were asked questions by the media. In particular, CBS correspondent Nelson Benton, asked each of the crewmembers if they harbored any concerns about taking part in the flight.

Virgil "Gus" Grissom replied,

> *"No, you sort of have to put that out of your mind. There's always a possibility that you can have a catastrophic failure, of course. This can happen on any flight. It can happen on the last one as well as the first one. You just plan as best you can to take care of all these eventualities, and you get a well-trained crew, and you go fly."*

January 27, 1967, "Gus" Grissom (quoted above), Ed White and Roger Chaffee died during a test on the launch pad. This was the first of three "*catastrophic failures*" in the space program. The other two were the Shuttle Challenger and the Shuttle Columbia.

Reports were produced analyzing each of these events. Recommendations were made and lessons published. It is the goal of this course, to analyze the circumstances surrounding these three events and study the "teams" involved, and the causative factors that may teach us today, what team behavior or dysfunction will help avoid failure on another very large, technically complex, integrated system representing a portfolio of Programs to manage to assure success.

Course Structure

Text & Midterms

There are two midterms. The first surrounds **The Team Handbook, 3e** text. This text is considered foundational and the assessment will measure your understanding of the way teams "should" function. The second midterm surrounds **The Five Dysfunctions of a Team: A Leadership Fable**. This text will review a few of the ways teams can be measured as being dysfunctional. The assessment will measure your understanding of the various descriptions of Dysfunction, and ways to recognize them and analyze ways to infer that a dysfunctional environment.

Team Based Learning

The successful student will be able to take the foundational lessons of how teams should work, and compare that to the actions of the "actors" in each of the tragedies to be studied. By analyzing actions that contributed to the tragedies through:

- Actions by teams which mirrored functions outlined in "The Team Handbook" text
- Failure to perform a function as outlined in "The Team Handbook" text
- The lens of direct dysfunction as noted in "The Five Dysfunction of a Team" text

The student is expected; therefore, to cite case references and support analysis through comparison to text based principles of teams then effectively summarize lessons learned or more tragically, lessons NOT learned.

Approach:

This course introduces the role of team management and development using both in person and remote virtual teams using the class environment, lectures, readings and active class participation. The foundation of this course is to prepare those to either become, or understand their role, as a leader of engineering teams thus learning must be accomplished by involvement. This will include role modeling, various exercises and constant communication and interaction. Supporting this approach, multiple presentations will be threaded in the assignment along with rotation of leaders. In pursuit of this goal, to the extent possible, the course will use a collaborative learning approach; meaning participation in class is critical to everyone's learning experience. The instructor will function more as a facilitator to accomplish this goal. This course will study the manned flight portion of the U.S. aerospace program (Apollo to the Space Shuttle) and utilize examples while studying published lessons learned. The student is expected to apply these to complex system team management.

Learning Objectives

To prepare those to be successful leaders of technical engineers who will provide direct value to their organization and their team.

Prerequisite(s): None
Co-Requisite (s): None
Concurrent Enrollment: None
Recommended Preparation:

- Competency in undergraduate level mathematics
- Capable of preparing professional papers and presentations in the English language using proper citation
- Ability to produce documents in MS PowerPoint with embedded audio and/or video which begins automatically upon first click

Course Notes

This course is Web-Enhanced with high reliance on Blackboard. All assignments will be submitted to Blackboard. No assignments will be accepted by email or paper unless arrangements have been made in advance. Copies of lecture slides and other class information will be posted on Blackboard. Interviews and other reference guidance will be posted to Blackboard as well (Course Documents). The final presentation is scheduled for 7:00PM on August 11, 2014. Please make every effort to attend. The period in class between 6:00PM – 7:00PM is reserved for preparation by the class for the presentation. Your presentation will be jointly reviewed and assessed by industry professionals with first hand knowledge of the subject matter.

Technological Proficiency and Hardware/Software Required

- Access to a computer with a web camera, microphone. Preferably with a headset with microphone and headphone.
- Proficiency with the use of BlueJeans
- Proficiency with the use of WebEx to make presentations and use private rooms if needed
- Proficiency with the use of the BlackBoard system. NO work will be accepted by email unless previous arrangements have been made.
- Proficiency to use multimedia on MS PowerPoint including inclusion of audio files which begin automatically with the beginning of your presentation

Required Readings and Supplementary Materials

Texts

ISBN: 978-1884731266
Title: The Team Handbook Third Edition
Author: Scholtes, Joiner, Streibel
Publisher: Oriel Inc; 3rd edition (March 24, 2003)

ISBN: 978-0787960759
Title: The Five Dysfunctions of a Team: A Leadership Fable
Author: Lencioni
Publisher: Jossey-Bass; 1 edition (April 11, 2002)

Reading Schedule

"Binge" reading is encouraged.

Assessment: The texts are the foundation of the course. All subsequent work will reference material from the text when assessing actions and activities presented through other materials assigned in Blackboard, videos, or your own independent research. In general, your work will be assessed favorably if you are able to present your findings by comparing and contrasting the data (facts) that you have cited in your research, with items properly referenced in the texts assigned.

Text	ISBN	Chapters	
The Team Handbook, 3e Scholtes, Joiner, Streibel	978-1884731266	Appendix A	Glossary
		Ch. 1	Using Teams
		Ch. 2	Teams Roles & Responsibilities
		Ch. 3	Doing Work in Teams
		Ch. 6	Learning to Work Together
		Ch. 7	Dealing With Conflict
The Five Dysfunctions of a Team: A Leadership Fable; Lencioni	978-0787960759	Required Reading: All – less Acknowledgements; About the Author	
Other Readings and videos as assigned on Bb			

Work through Teams

Overview

The course is structured in the following segments.

1. Introduction and determination of teams (Teams to be determined by instructor)
2. Teams will be assigned to study and present on one of the following three events in detail:
    a. Apollo 1
    b. Shuttle Challenger
    c. Shuttle Columbia
3. Team study and presentation to summarize into one presentation and paper to discuss:
    a. Lessons Learned
    b. Lessons Learned but "Lost"
    c. Lessons Never Learned

Schedule

Stage one papers and presentations are due in class on these dates:

- July 9 (Event)
- July 16 (FMEA)
- July 23 (Cause)

Stage two papers and presentations are due in class (attendance highly encouraged)

- August 11 (Lessons Learned and/or Lost)

Assessment rubric

	Does Not Meet Expectation	Meets Expectation	Exceeds Expectation
Paper	• Grammar errors • Spelling errors • Insufficient citation	• Accurately reports events as published in single cited reference • Analysis of events using text(s) as reference to evaluate team performance	• Reports events as published in multiple cited sources • Analysis from various stakeholder positions of event reporting • Assessment of credibility from multiple sources
Presentation – Stage 1	• Excess verbal tics • Poor graphics • Being exceeding "over" or "under" assigned time allotment	• Well rehearsed presentation • Clearly present published facts • Succinctly present important conclusions	• Analysis from more than one perspective • Conclusion of credibility in analysis
Final Presentation – Stage 2	• Excess verbal tics • Poor graphics • Being exceeding "over" or "under" assigned time allotment	• Well rehearsed presentation • Clearly present published facts • Succinctly present important conclusions	• Analysis from POV: o Contractor o NASA (JSC, KSC, MSC) o Media / public o Government • Conclusion of credibility in analysis

Assessment of Team Work

- 50% Paper assessment credited to team member as individual contributor for content.
- 50% Team grade on presentation

Assessment of Team Leader

- 50% Content of team presentation
- 50% Lessons learned from feedback of papers and presentation from prior week
    - Peer evaluation feedback to team members & tracking improvement
    - Improvement in following week's Team presentation and overall paper performance

Team Leadership will rotate weekly

Assessment Summary

Assignment	Points	% of Grade
Student Introduction Typology Test	P/F	P/F
Stage 1 Individual effort (5 x 4) Stage 1 Team effort (5 x 4)	40	40
Stage 2 Individual effort (5 x 1) Stage 2 Team effort (5 x 1)	10	12.5
Midterm 1	100	20
Midterm 2	100	20
Other • Instructor evaluation • Participation • Guest evaluation	5	7.5

Assignment Submission Policy

Assignments will be submitted through Blackboard. No assignment will be accepted by email unless approved in advance of submission due date. Assignments are due at 3PM of date assigned. If there are issues with Blackboard, please write to the help desk listed on the cover page of this syllabus.

Additional Policies

Late assignments are accepted, but graded with a 25% penalty if received after the 3PM due time, but before class starts. A 50% penalty will be levied if received during class, and no credit given if received after the scheduled end of class.

Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings and Homework	Deliverable/ Due Dates
Class 1 W 7/2	July 2 – Course Intro; STUDENT INTRO	**Typology Test; Vulnerability**	**Typology test results due Noon 7/7**
Class 2 M 7/7	**Team selection; Lecture: Typology Lecture: Team Handbook**	**Event description**	Team presentation of EVENTS (NEXT CLASS)
Class 3 W 7/9	Student presentation of Events; Lecture: Team Dysfunction 1/2	FMEA	360 degree evaluation; Team leader review with team by 7/14
Class 4 M 7/14	**Midterm** Lecture: Team Dysfunction 2/2	**FMEA**	**Paper & Presentation 7/16**
Class 5 W 7/16	**Student presentation of FMEA – Interview**	***Cause***	360 degree evaluation; Team leader review with team by 7/21
Class 6 M 7/21	**Midterm Discussion – Cause**	**Cause**	**Paper & Presentation 7/23**
Class 7 W 7/23	**Student presentation of Cause – Organizations involved**	**Organization (Team) contribution to failure**	360 degree evaluation; Team leader review with team by 7/28
Class 8 M 7/28	**Midterm Interview**	**Organization (Team) contribution to failure**	**Paper & Presentation 7/30**
Class 9 W 7/30	**Student presentation of Organization (Team) Failure – Interview**	**Organization (Team) contribution to failure**	360 degree evaluation; Team leader review with team by 8/4 **Team Leader – Team progress report**
Class 10 M 8/4	**Organizational perspectives**	**Recap Lessons Learned**	
Class 11 W 8/6	**Team perspectives in an interagency world**	**Final presentation – "What We've Learned"**	
Class 12 M 8/11	**6:00PM-7:00PM 7:05PM Final Presentation – "What We've Learned" Recap by Panel of Experts**		

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. Website and contact information for DSP: http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html, (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX) ability@usc.edu.

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, (www.usc.edu/scampus or http://scampus.usc.edu) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

Emergency Preparedness/Course Continuity in a Crisis

In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.