

SYST 371

SYSTEMS ENGINEERING MANAGEMENT

Prof. Paulo C. G. Costa, PhD

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George Mason University
<http://mason.gmu.edu/~pcosta>

Teacher Assistant: Ms. Sarah Al-Sharif

Course Description

Spring 2016

This course is intended to provide engineers with systems management and project control skills required to formulate and manage large, complex projects. The initial part of the semester will be devoted to the development and demonstration of individual ability to use engineering management tools, as well as to exercise control on the trade off performance, cost, and scheduling of a project. The second part of the course turns the focus to preparing engineers to face team competition in a project proposal situation. In this phase, team leaders will be chosen based upon individual performance on the midterm exam and homework, and will then select their teammates. All teams will be given a common engineering management problem and will bid for the contract at the end of the semester. I will act as the procurement executive of a large company that has published the request for proposal (RFP) and will assign grades based upon the merits of each team submission.

Class Details

Prerequisites: SYST 210 – Systems Design

Co-requisites: SYST 330 – System Methods

Classes

** Room 120 of the Planetary Hall.*

** Tuesdays Thursdays, from 10:30 a.m. to 11:45 a.m.*

Office hours (Prof. Costa)

** Room 2227 of the Engineering Building.*

** Mondays, from 2:00 p.m. to 4:00 p.m., or by appointment.*

** Dr. Costa's contact data: (703) 993-9989 / pcosta@gmu.edu*

Office hours (Ms. Al-Sharif)

** Room 2216 of the Engineering Building.*

- * *Wednesdays, from 2:00 p.m. to 4:00 p.m., or by appointment.*
- * *Ms. Sharif's contact data: salshar3@masonlive.gmu.edu*

Administrative

- * *Registration and drop without tuition penalty deadline: Jan 26th.*
- * *Drop with 33% tuition penalty: Feb 2nd.*
- * *Final Drop deadline (66% tuition penalty): Feb 19th.*

Course Logistics

1. All course communication will be done via the Blackboard system. Students are expected to have access and be able to use the system before classes start. Blackboard is accessible via the MyMason portal at <https://mymasonportal.gmu.edu/>. Instructions for using the Blackboard system are provided in the “resources” link at the bottom of the portal page.
2. Volgenau School Computing Resources has answers to many questions about school systems on their web site: <http://labs.vse.gmu.edu> and will try to help you if have problems connecting to school computing systems. However, they will not provide assistance with general computing questions or course assignments. Please contact me if you have any questions about how to use software to complete your assignments.
3. Accommodations for disability: If you have a documented learning disability or other condition that may affect your academic performance you should: a) make sure this documentation is on file with Office for Disability Services (SUB I, Rm. 4205; 993-2474; <http://ods.gmu.edu>) to determine the accommodations you need; and b) let me know about your accommodation needs as soon as possible. If you have contacted the Center for Disability Services and are waiting to hear from a counselor, please keep me updated during the whole process.
4. Inclement weather: Class sessions may be held remotely (via Blackboard Collaborate) due to inclement weather or other University emergencies. Check the Announcements area of the course website for updates.
5. Students are expected to be able to attend classes held online via Blackboard Collaborate, as well as quizzes or other activities associated with such classes (e.g. snow days).

Expected Behavior

1. Attendance in class is essential. Information will be presented that will not necessarily be in the book, and is almost certain to be in both the midterm and final exams.
2. You are allowed to enter or leave at any time, provided you do your best to avoid disrupting the activity going on.
3. Please make sure you have your cell phone, tablet, pager, etc., in silent mode. Should you find yourself in *extreme* need to answer an incoming call, just leave the room to do so.

4. With a few exceptions, almost all of the course deliverables are submitted electronically (e.g. class-work and homework), scheduled in advance, and with some flexibility for students to change. Should any scheduled event impact a student's participation in class activities and assignments, it is the student's responsibility to coordinate with me in advance.
5. Students are permitted to interact on homework assignments, but your write-up must be your own. Assignments are intended to provide practical, hands-on experience with the ideas presented in the course.
6. Late assignments, when properly justified, will receive reduced credit in accordance with the late assignment policy (below in this document). No points will be awarded if homework is turned in after solutions have been posted.
7. The exam dates and scheduling provided below are tentative, and it is the students' responsibility to keep abreast of changes.
8. Make-up exams will *only* be given for extreme situations, and *only* if I am contacted before the exam is given and full arrangements are established. Full adherence to this policy is the responsibility of the student.
9. Religious observances are one common example of events that might impact students' activities. Students are responsible for planning ahead. Please, refer to the GMU's calendar of religious holidays at http://ulife.gmu.edu/religious_calendar.php.
10. Academic Policy: All academic policies as given in the Honor System and code will be strictly followed. These are available at <http://catalog.gmu.edu/content.php?catoid=19&navoid=4113>.
11. General Policies: All general policies defined in the University Catalog are in place for this course. You can access those at <http://catalog.gmu.edu/content.php?catoid=19&navoid=4114>.
12. George Mason University is an Honor Code university. Please see the Office of Academic Integrity website (<http://oai.gmu.edu/the-mason-honor-code-2/>) for a full description of the honor code and the honor committee process.

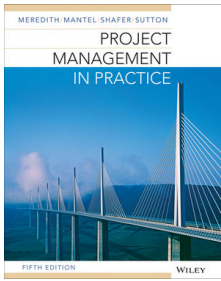
Exercise planning, be proactive and do your best to stay ahead of schedule.

Tentative Course Outline:

Week 1	Class 01 Class 02	1/19 1/21	Syllabus review, Myers Briggs exercise, Unit 1 - Introduction to project management..
Week 2	Class 03 Class 03	1/26 1/28	CANCELLED DUE TO SNOW STORM Unit 1: review of NPV calculations

Week 3	Class 04 Class 05	2/2 2/4	Unit 2 - Team Working: Main roles, leadership, and organization of the team, pitfalls and advantages of working in groups.
Week 4	Class 06 Class 07	2/9 2/11	Unit 3 - Project Planning: Work breakdown structure
Week 5	Class 08	2/16	Unit 3 - RACI matrix and multidisciplinary teams.
	Class 09	2/18	Unit 4 - Project Budgeting: Methods for budgeting, cost estimating, learning curves, tracking signals.
Week 6	Class 10	2/23	Unit 4 – Project Budgeting: Budget uncertainty, risk management.
	Class 11	2/25	Unit 4 – Project Budgeting: Tracking Signal.
Week 7	Class 12	3/1	Midterm Review
	Class 13	3/3	Midterm
Week 8	SPRING BREAK		
Week 9	Class 14	3/15	Team assignments and briefing, Midterm Exam review
	Class 15	3/17	Unit 5 - Project Scheduling: PERT and CPM.
Week 10	Class 16	3/22	Unit 5 - Schedule uncertainty and risk management.
	Class 17	3/24	Unit 5 - GANTT chart, extensions to PERT/CPM.
Week 11	Class 18	3/29	Unit 6 - Expediting a project.
	Class 19	3/31	Unit 6 - Resource loading and resource leveling.
Week 12	Class 20	4/5	Unit 6 - Special topics.
	Class 21	4/7	Unit 7 - Monitoring a project.
Week 13	Class 22	4/12	Unit 7 – Earned Value.
	Class 23	4/14	Unit 7 - Project Control, Controlling Changes.
Week 14	Class 24	4/19	Project meetings and final preparation.
	Class 25	4/21	Team Presentations
Week 15	Class 26	4/26	Team Presentations
	Class 27	4/28	Team Presentations
Week 16	Class 28	5/3	Course review / Team Presentation backup day
	Final Exam	5/10	Tuesday, 10:30 a.m. to 1:15 p.m.

Textbook



Project Management in Practice

Jack R. Meredith, Samuel J. Mantel Jr., Scott M. Shafer,
Margaret M. Sutton.

Wiley; 5th edition (September 23, 2013). 336 pp.

ISBN-10: 1118674669.

ISBN-13: 978-1-118-67466-6.

Grading

The grading structure of this course is as follows:

- Assignments (20% of grade)
- Midterm (25% of grade)
- Final Exam (25% of grade)
- Team Project (30% of grade)

Assignments

There will be assignments posted via Blackboard during the course. Each assignment will have its respective due date defined during the announcement. I might sometimes not grade the assignments in detail, but will always use it to gain insight on how well students are understanding the subject.

You are not prevented from working with your peers on the class work and homework exercises, and are even encouraged to do so. However, each student must provide his/her own answers, and I might verify whether he/she actually worked in his/her respective exercise and understood the solution provided. In any case, past experience consistently shows that students who didn't keep up with the assignments had a hard time with the exams.

Assignments must be submitted via Blackboard and can be of three types:

Homework Assignment: Each homework assignment is out of 100 points. Unless stated otherwise, I will present the solutions at the beginning of the next class after the assignment was handed. If you submit your assignment after it is due but before I make the solutions available you can earn a max of 70 points. An assignment handed after the solutions are posted will yield 0 points.

Tests, Quizzes, or Challenges: These are conducted in class on an *ad hoc* basis, and each will be out for an amount of points to be disclosed prior to the class. The details of each test, quiz, or challenge will be explained during its respective announcement.

Files should be named with the following convention:

Syst371_AssignmentTypeAndWeek_LastnameFirstname.

Examples: Syst371_Hwk2_DoeJohn, Syst371_ClassWork2_PoppinsMary, etc.

Always check for grades on Blackboard. If you don't see the grade, report to me by the next class after assignments have been returned. I will not entertain missing grade requests that come later in the semester.

Exams

Both the Midterm and the Final exams will be taken in-class.

Midterm: 3/3, 10:30 a.m. – 11:45 a.m., Planetary Hall, room 120

Final: 5/10, 10:30 a.m. – 1:15 p.m., place TBD

Group Project

Overview. Students will be divided into 9 groups. Three Requests For Proposal (RFP) will be released. Each RFP will be given to 3 groups, which will act as internal competitors within a company (SYST 371, Inc.). The groups will present a draft proposal and an associated presentation to an evaluation panel, which will act as the company's high brass deciding on which of the draft proposals should go ahead and represent the company in the actual bid.

Grading. The Group Project grading is structured as follows:

- Oral presentation (35%);
- Final report (35%); and
- Team self-evaluation (30%).

Oral presentation. Each group will have 18 minutes to present their work, while at least 5 minutes will be reserved for questions. Slides must be submitted via Blackboard no later than 2 p.m., Eastern Time, ***of the day before the presentation!*** It is tolerable to make changes to your presentation after submitting it, although you are expected to submit a reasonably "close-to-final" version of the actual presentation.

- All group components are expected *to talk in the presentation and to be available for questioning.*
- All group components are expected to present and to be available for questioning.
- Attendance is mandatory to all students, including those not presenting. Failure to attend will impact the student's group project grade by up to 5 points.
- Dressing code is part of the evaluation for the presenters.

The evaluation panel is composed by SEOR professors and fellow students. The later will be chosen by their own group. Each group should submit the names of two representatives to compose the evaluation panel by Tuesday, 4/12, 11:59P.M. The names must be submitted via email to Prof. Costa

Group Project Final report. A 10-pages written report is due on Tuesday 5/3, 11:59 p.m. Eastern Time. It must be submitted via the Blackboard system, which will have a suggested outline available to students. Neither the bibliography section nor the appendices count towards the page limit.

Team self-evaluation. Your grade on this project will be strongly affected by your peer evaluations and my own observations on your level of participation and performance

You are expected to rate each person of your team – not including you - on a 100-point scale. The rating scale is as follows:

- **90 - 100** Participated enthusiastically, exhibited strong leadership, attended regularly and was essential to meetings, performed tasks responsibly and on time, work was extremely high quality, took excellent initiative and was highly self-motivated;
- **80 - 90** Good participation, attended and contributed to meetings, exhibited leadership, performed tasks responsibly and on time, work of dependable high quality, took good initiative and was self-motivated;
- **70 - 80** Adequate participation, usually attended and contributed to meetings, exhibited some leadership, performed tasks responsibly and usually on time, work of dependable good quality, took reasonable initiative and was reasonably self-motivated;
- **50 - 70** Participation could have been better, performed tasks when asked but may have been late and/or needed reminders, quality could have been better, needed guidance and usually did not take enough initiative;
- **50 or lower** Participation was minimal or non-existent; any work that was turned in was of inadequate quality.

BEST WISHES FOR A GREAT SEMESTER!!!

Friday, March 25, 2016.