

# SYST 371

## SYSTEMS ENGINEERING MANAGEMENT

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Teacher Assistant: Sarah Al Sharif

### Course Description

Spring 2015

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 129 of the Planetary Hall.*

\* *Mondays and Wednesdays, from 3 p.m. to 4:15 p.m.*

#### *Office hours*

\* *Room 2227 of the Engineering Building.*

\* *Wednesdays, from 2:00 p.m. to 3:00 p.m., or by appointment.*

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

\* *TA's contact data: [salshar3@masonlive.gmu.edu](mailto:salshar3@masonlive.gmu.edu)*

*Administrative*

- \* *Registration and drop without tuition penalty deadline: Jan 27<sup>th</sup>.*
- \* *Drop with 33% tuition penalty: Feb 10<sup>th</sup>.*
- \* *Final Drop deadline (66% tuition penalty): Feb 20<sup>th</sup>.*

**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 you 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 cancelled due to inclement weather or other University emergencies. Check the Announcements area of the course website for updates.

**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](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://academicintegrity.gmu.edu/honorcode/>) for a full description of the honor code and the honor committee process.

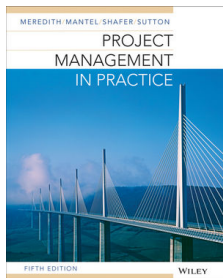
**Exercise planning, be proactive and do your best to stay ahead of schedule.**

### Course Outline:

Week 1a	1/21	Syllabus review, Myers Briggs exercise, Unit 1 - Introduction to project management..
Week 1b	1/26	
Week 2a	1/28	Unit 2 - Team Working: Main roles, leadership, and organization of the team, pitfalls and advantages of working in groups.
Week 2b	2/2	
Week 3a	2/4	Unit 3- Project Planning: Work breakdown structure, RACI matrix, and multidisciplinary teams.
Week 3b	2/9	
Week 4a	2/11	Unit 4 - Project Budgeting: Methods for budgeting, cost estimating, learning curves, tracking signals.
Week 4b	2/16	
Week 5a	2/18	Unit 4 – Project Budgeting: Budget uncertainty, risk management.
Week 5b	2/23	

Week 6a	2/25	Unit 4 – Project Budgeting: Tracking Signal.
Week 6b	3/2	Midterm Review
Week 7a	3/4	Midterm
Spring Break		No classes on 3/9 and 3/11
Week 7b	3/16	Team assignments and briefing, Midterm Exam review
Week 8a	3/18	Unit 5 - Project Scheduling: PERT and CPM, Schedule uncertainty and risk management.
Week 8b	3/23	Unit 5 - GANTT chart, extensions to PERT/CPM.
Week 9a	3/25	Unit 6 - Resource allocation: expediting a project, resource loading.
Week 9b	3/30	Unit 6 - Resource allocation: resource leveling.
Week 10a	4/1	Unit 6 - Resource allocation: special topics.
Week 10b	4/6	Unit 7 - Monitoring and controlling: monitoring a project, earned value.
Week 11a	4/8	Unit 7 - Monitoring and controlling: project control, controlling changes.
Week 11b	4/13	Unit 8 – Evaluating and terminating the project: evaluation, project auditing
Week 12a	4/15	Unit 8 – Evaluating and terminating the project: project termination
Week 12b	4/20	Project meetings and final preparation.
Week 13a	4/22	Team Presentations
Week 13b	4/27	Team Presentations
Week 14a	4/29	Team Presentations
Week 14b	5/4	Course review
Final Exam	5/11	Monday, 1:30 p.m. to 4:30 p.m.

## Textbook



### Project Management in Practice

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

Wiley; 5<sup>th</sup> 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 present the solutions 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 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: 3/4, 3:00 p.m. – 4:15 p.m., Planetary Hall, room 129

Final: 5/12, 1:30 p.m. – 4:30 p.m., place TBD

## **Project, Timesheets, and Team Self-Evaluation**

Detailed instructions for these activities will be provided later in the course.

**BEST WISHES FOR A GREAT SEMESTER!!!**

Monday, January 12, 2015.