

**George Mason University**  
**School of Information Technology and Engineering**  
**Department of Systems Engineering and Operations Research**

***Spring 2011 SYST 513***

***Total Systems Engineering, Reengineering, and Enterprise Integration***  
***7:20 pm – 10:00 pm Tuesday – GMU and Elluminate***

## **Syllabus**

**Professor:** *Dr. Philip Barry*

**Phone:** 703-983-7826

**E-mail:** [pbarry@gmu.edu](mailto:pbarry@gmu.edu)

**Office Hours:** *By appointment*

**Home Page:** *Class Web Site:* <http://courses.gmu.edu>

*(required username and password)*

**Course Description: From the Catalog:** *Prerequisite: SYST 510 or SYST 520.* Principles of strategic quality, including TQM. Quality standards including ISO9000 and 14000. Organizational leadership, cultures, and process maturity, reengineering. Quality, organization learning and reengineering approaches to enable information integration and management and environment and framework integration in the systems engineering of knowledge intensive systems. Emphasis is placed on the role of integrated product and process design teams, standard and commercial off the shelf products in enterprise integration. Architecture driven system characteristics are studied, as is transition management of legacy systems.

### **References:**

- Recommended: Enterprise Systems Engineering, Advances in the Theory and Practice edited by George Rebovich and Brian White, CRC Press, 2010.
- Recommended: Systems Engineering, Principles and Practice by Alexander Kossiakoff and William N. Sweet, John Wiley and Sons, 2003.
- Lectures and assigned materials will be made available on the GMU web site (<http://courses.gmu.edu>).
- Other references will be provided as the class progresses.

**Grades** 30% - Midterm, 30% - Final, Semester Project – 35%, Class Participation 5%. Two exams will be given, one approximately at the middle of the semester and one at the end of the semester. The exams will be open book and open internet. No collaboration will be allowed on the exams. A semester project will be given that tracks closely to the lectures but may require additional research.

Grades are allocated as follows:

<b>Average</b>	<b>Letter Grade</b>
[94,100]	A
[90,93)	A-
[86,89)	B+
[83,85)	B
[80,82)	B-
[70,79)	C
[0, 69)	F

**Late Submission of tests or project will NOT be accepted.**

### **Agenda:**

**25 Jan** - Course overview, administrative matters, and introduction;  
Foundations – Utility and Risk

**1 Feb** The Nature of Human Complex Systems and the DOTMLPF/RG  
**Project Assignment 1**

**8 Feb** Capability Based Needs Analysis and Requirements

**15 Feb** – Architecture Driven System Development  
**Discussion of Project Assignment 1 and Assignment of Project Assignment 2**

**22 Feb** –Exam

**1 Mar** – Migration of Legacy Systems  
**Discussion of Project Assignment 2 and Assignment of Project Assignment 3**

**8 Mar** – COTs, GOTs and Enterprise Integration  
**Exam Review**

**15 Mar** – **Spring Break**

**22 Mar** – Quality - ISO 9000 and TQM  
**Discussion of Project Assignment 3 and Assignment of Project Assignment 4**

**29 Mar** - Process Definition, Process Maturity and Reengineering

**5 Apr** – The Role Agile Processes and Developing Quality Agile Systems

**Discussion of Project Assignment 4 and Assignment of Project Assignment**

**12 Apr** – System Assurance with Uncertainty

**19 Apr** – The Role and Effect of Policy and Standards

**Discussion of Project Assignment 5 and Assignment of Project Assignment 6**

**26 Apr** -- Tradespaces with Financial Considerations

**Final Released On Blackboard**

**3 May** – Leadership, Engagement and the Role of Integrated Product and Process Design Teams

**Discussion of Project Assignment 6 and Assignment of Project Assignment 7**

**10 May - Final Due – Submit Through Blackboard**

**Final Review**

**Project Presentations**