

**George Mason University**  
**School of Information Technology and Engineering**  
**Department of Systems Engineering and Operations Research**  
*Spring 2008 SYST513-001-13177*  
**Total Systems Engineering, Reengineering, and Enterprise Integration**  
**7:20 pm - 10:00 pm Wednesdays – ENT 278 - Jan 23, 2008 – May 7, 2008**

## **Syllabus**

**Professor:** *Dr. Tan N. Nguyen* <http://en.wikipedia.org/wiki/User:DrTanNguyen>

**Telephone:** 703-993-1670 **Mobile Phone:** 703-338-7935

**E-mail:** [tnguy1@gmu.edu](mailto:tnguy1@gmu.edu) (please cc: [drtannnguyen@gmail.com](mailto:drtannnguyen@gmail.com))

**Office Hours:** *By appointment*

**Home Page:** *Class Web Site:* <http://webct.gmu.edu> (required username and password)

*Public Web Sites:* <http://classweb.gmu.edu/tnguy1>

or <http://www.gmu.edu/departments/seor/syllabi/spring08.htm>

**Course Description:** *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. Case studies of some current U.S. Federal governmental or commercial enterprises are presented. In addition, the professor will present topics related to "real-life" enterprise architecture, enterprise integration, systems engineering, enterprise engineering, and some practical issues with solutions from his experience in large scale systems development, operating systems, data communications, computer networks, and distributed systems integration.

### **Honor Code**

Honor Code procedures will be strictly adhered. Students are required to be familiar with the honor code. You must not utilize unauthorized material or consultation in responding to your tests, homework, and assignments. There are several web sites that published homework solutions, project assignment programs, etc. Numerous professors used the homework solutions from the textbook as their standard grading keys and also published the solutions on the Internet. You may use those solutions as references but you are not allowed to copy them. Violations of the honor code will be reported. Obvious honor code violations (exact copy of work, etc) will be graded as 0/100 (zero percent).

### **Textbook:**

Required (T1): Systems Engineering, Principles and Practice by Alexander Kossiakoff and William N. Sweet, John Wiley and Sons, 2003.

Reference (T2): Andrew P. Sage, *Systems Management for Information Technology and Software Engineering*. New York: John Wiley and Sons, 1995.

References: Defense Acquisition Guidebook, DoD web site:

[https://akss.dau.mil/dag/TOC\\_GuideBook.asp?sNode=R4-0&Exp=Y](https://akss.dau.mil/dag/TOC_GuideBook.asp?sNode=R4-0&Exp=Y) , Chapters 4 and 11.

References: Lectures and assigned materials will be made available on the GMU web site (<http://webct.gmu.edu>) and other WWW locations.

### Grades

25% - Midterm, 30% Final, 25% - term paper, 20% - homework assignments. Two exams will be given, one approximately at the middle of the semester and one at the end of the semester. There will be a term paper assignment on total systems engineering and 4 homework assignments.

The following table is used to convert the final numerical grade to a letter grade:

Grade G	Letter Grade
[96,100]	A+ or A
[92,96)	A-
[87,92)	B+
[82,87)	B
[77,82)	B-
[51,77)	C
[0, 50)	F

***IMPORTANT NOTE:*** *It requires an exceptionally challenging performance to earn 92% or greater*

### Schedule:

- 1. Jan 23:** Course overview, administrative matters, and introduction
- 2, 3. Jan 30 & Feb 6:** Part I: Total Systems Engineering Foundations (Tan Lectures and Ref: Chapters 1-4, T1), HW 1 Released Feb 6
- 4, 5. Feb 13 & Feb 20:** Part II: Concept Development (Tan Lectures and Ref: Chapters 5-7), HW #1 Due Feb 20.
- 6. Feb 27:** Part III: Engineering Development (Tan Lectures and Ref: Chapters 8-10) and Topics in Enterprise Integration - HW 2 Released Feb 27
- 7. Mar 5:** Post-Development (Tan Lecture and Ref: Chapters 11 and 12)  
\*\*\*\*\* Note: Spring Break - March 12, 2008 – No class \*\*\*\*\*
- 8. Mar 19:** Midterm Exam - HW2 Due March 19 – Term Paper Outlines Due
- 9, 10. Mar 26 & April 2:** Strategic Quality Assurance and Management Practices and Trends (Tan Lectures and Ref. Chapter 6, T2) HW3 Released Mar 26
- 11, 12. April 9 & April 16:** Organizational Leadership, Cultures, and Process Maturity – Lean Process and Six Sigma (Tan Lectures and Ref. Chapter 7, T2) HW3 Due April 9- HW #4 Release April 16
- 13, 14. April 23 & 30:** Reengineering (Tan Lectures and Chapter 8, T2) HW4 due April 30 – Term Paper Due April 30.
- 15. May 7, 2008 - Final Exam**