SYST 513: Total Systems Engineering, Reengineering and Enterprise Integration 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. (Fall)

Textbook:
- Andrew P. Sage, *Systems Management for Information Technology and Software Engineering*. New York: John Wiley and Sons, 1995.
- Other assigned materials will be made available on the GMU web site and other WWW locations.

References:
- Andrew P. Sage and W. B. Rouse, Eds., *Handbook of Systems Engineering and Management*. New York: John Wiley & Sons, 1999.
- Kerzner, H. (1992). *Project Management: A Systems Approach to Planning, Scheduling, and Controlling* (4th ed.). New York: Van Nostrand Reinhold Company.
- Bass, B. M., & Stogdill, R. M. (1990). *Handbook of Leadership: Theory, Research, and Managerial Applications* (3rd ed.). New York: The Free Press Division of MacMillan, Inc.
- Sage, A. P. (1992). *Systems Engineering*. New York: John Wiley & Sons, Inc.
- Forsberg, K., Mooz, H., & Cotterman, H. (1996). *Visualizing Project Management*. New York: John Wiley & Sons.
- Hazelrigg, G. A. (1996). *Prentice Hall International Series in Industrial and Systems Engineering. Systems Engineering: An Approach to Information-Based Design*. Upper Saddle River, NJ: Prentice Hall.
- A much more comprehensive set of references specific to individual topics is found at the end of each chapter of our textbook.

Instructor:
Dr. F. G. Patterson, Jr. Email: *syst513@cox.net* or *syst513@drfgp2.dynu.com*. Telephone: (202) 358-2171. Hours: after class, and by appointment.

Grades:
Grades: 50% - examinations, 20% - project & presentation, 30% - home assignments. Two take home 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, including a written report and a seven-minute oral presentation, and weekly assignments.

Detailed Syllabus and Outline (*subject to change*) — Fall 2002:

1. Course overview, administrative matters, and introduction. **August 28, 2002.**

2. System engineering life cycles (textbook ch. 2). **September 4, 11**.

3. Strategic quality assurance and management practices and trends (textbook ch. 6). **September 18. 25, October 2, 9** (*mid-term exam out Oct 9*)

4. Organizational leadership, cultures, and process maturity (textbook ch. 7) **October 16** (*mid-term exams due Oct 16*), **23, 30, November 6**

5. Business process reengineering (textbook ch. 8) **November 13. 20**

6. Term paper presentations/reports, **December 4** (*final exam out Dec 4*). *Final exam papers due by midnight,* **December 11**, *2002.*