SYST 520 System Engineering Design (3.0:3) Spring 2014
Prerequisites: Graduate standing

Description: System design and integration methods are studied and practiced, including structured analysis and object-oriented based techniques. Life cycle of systems is addressed, including definition and analysis of life cycle requirements. Software tools are introduced and used for the systems engineering cycle. Identification of preliminary architectures. Students are expected to develop a system design for a system of their choice using both the structured analysis and object-oriented techniques presented in class and they will make presentations on these designs.

Instructors: Prof. Alexander H. Levis Nguyen Eng. Room 3245 Tel 703 993 1619

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Spring 2014: Monday 4:30 – 7:10 pm Classroom: Nguyen Engineering 2608

COURSE OUTLINE (subject to change as the course progresses)

SYST 520	S14	A H Levis, A K Zaidi
Date	L#	Subject
1/27/2014	L 1	Introduction to Systems Engineering; Design and Integration
2/3/2014	L2	Operational Concepts and Use Cases; Requirements
2/10/2014	L3	Structured Analysis: Activity Modeling (IDEF0 and DFD)
2/17/2014	L4	Structured Analysis: Data Modeling (IDEF1x and E-RD)
2/24/2014	L5	Behavior Modeling: Rule Modeling and Dynamics Modeling (STD)
3/3/2014	L6	Model Concordance, Functional Architecture
3/10/2014		**Spring Break**
3/17/2014	L7	Physical Architecture and System Design
3/24/2018	L8	Architecture Frameworks and Arch. Description Languages (UML, SysML)
3/31/2014	L9	Midterm: Team Design Presentations
4/7/2014	L10	Architecture Frameworks and Arch. Description Languages (UML, SysML)
4/14/2014	L11	OO Architecture Design: Functional Viewpoint
4/21/2014	L12	OO Architecture Design: System Viewpoint
4/28/2014	L13	Interface Design, Integration and Qualification
5/5/2014	L14	Closure and Team Design Presentations
5/13/2014		Final Exam

Required Textbooks:
(1) Dennis M. Buede, *The Engineering Design of Systems*, Wiley, 2009, NY (2nd Edition).
(2) Sanford Friedenthal, Alan Moore, and Rick Steiner, *A Practical Guide to SysML: The Systems Modeling Language*, The MK/OMG Press, (Elsevier) 2012 (2nd Edition).

This course is offered both as an in-class and synchronous distance learning sections. The Blackboard system will be used for most course activities. Extensive lecture notes and supplementary readings will be available through Blackboard

Homework: There are weekly reading assignments and homework assignments

Grading: Homework sets will count for 50% of the final grade. The midterm presentation will count for 10% of the grade, the final class presentation for 15%, and the in-class final examination for 25%.

The George Mason University Honor Code can be found at
http://oai.gmu.edu/honor-code/masons-honor-code/