George Mason University   **The Volgenau School of Engineering**

SYST 520 System Engineering Design (3.0:3)   Spring 2015
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.

Instructor: Prof. Alexander H. Levis   Nguyen Eng. Room 3245   Tel 703 993 1619
Best way to contact: alevis@gmu.edu   Class Location: Nguyen Engineering 2608
TA: Bahram Yousefi byousefi@masonlive.gmu.edu   Class time: Monday 4:30 – 7:10 pm

SYST 520	S15	A H Levis	
Date	L#	Subject	
1/26/2015	L 1	Introduction to Systems Engineering; Design and Integration	Buede
2/2/2015	L2	Operational Concepts and Use Cases; Requirements	Notes + S
2/9/2015	L3	Structured Analysis: Activity Modeling (IDEF0 and DFD)	Buede
2/16/2015	L4	Structured Analysis: Data Modeling (IDEF1x and E-RD)	Notes + S
2/23/2015	L5	Behavior Modeling: Rule Modeling and Dynamics Modeling (STD)	Notes + S
3/2/2015	L6	Model Concordance, Functional Architecture	Buede
		Spring Break	Buede
3/16/2015	L7	Physical Architecture, System Design, and Interface Design	
3/23/2015		Midterm: Team Design Presentations	
3/30/2015	L8	Architecture Frameworks	Notes +S
4/6/2015	L9	Object Orientation and UML	Notes + S
4/13/2015	L10	Arch. Description Language (UML)	Notes
4/20/2015	L11	OO Architecture Design: Functional Viewpoint	Notes
4/27/2015	L12	OO Architecture Design: System Viewpoint	Notes
5/4/2015	L13	Integration and Qualification; Closure	Buede
5/11/2015		Final Exam	
		+ S: Plus Supplementary Readings on Blackboard	

Required Textbook:
Dennis M. Buede, *The Engineering Design of Systems,* Wiley, 2009, NY (2nd Edition).
Also available as grayscale loose leaf (omits Chapters 4 and 5) at the GMU Bookstore (lower cost) and as an e-book at even lower cost: http://store.vitalsource.com/show/9781119097365
Extensive lecture notes and supplementary readings will be available through Blackboard.

The Blackboard system will be used for most course activities.

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 20% of the grade, and the in-class final examination for 30%.

The George Mason University Honor Code can be found at
http://oai.gmu.edu/the-mason-honor-code-2/