

SYST 520 System Engineering Design (3.0:3)

Fall 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.

Instructor: Prof. Alexander H. Levis

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Class Location: Mason Hal D003

Teaching Assistant: TBD

Class time: Tuesday 4:30 – 7:10 pm

SYST 520	F14	A H Levis	
Date	L#	Subject	
8/26/2014	L 1	Introduction to Systems Engineering; Design and Integration	Buede
8/2/2014	L2	Operational Concepts and Use Cases; Requirements	Notes + S
8/9/2014	L3	Structured Analysis: Activity Modeling (IDEF0 and DFD)	Buede
8/16/2014	L4	Structured Analysis: Data Modeling (IDEF1x and E-RD)	Notes + S
8/23/2014	L5	Behavior Modeling: Rule Modeling and Dynamics Modeling (STD)	Notes + S
8/30/2014	L6	Model Concordance, Functional Architecture	Buede
10/7/2014	L7	Physical Architecture and System Design	Buede
		Fall Break	
10/21/2014	L8	Architecture Frameworks	Notes +S
10/18/2014	L9	Object Orientation and UML	Notes + S
11/4/2014		Midterm: Team Design Presentations	
11/11/2014	L10	Arch. Description Languages (UML, SysML)	Notes
11/18/2014	L11	OO Architecture Design: Functional Viewpoint	Notes
11/25/2014	L12	OO Architecture Design: System Viewpoint	Notes
12/2/2014	L13	Interface Design, Integration and Qualification; Closure	Buede
12/16/2014		Final Exam	
		+ S: Plus Supplementary Readings on Blackboard	

Required Textbooks:Dennis M. Buede, *The Engineering Design of Systems*, Wiley, 2009, NY (2nd Edition).

Extensive lecture notes and supplementary readings will be available through Blackboard

This course is offered both as an in-class and a synchronous distance learning sections. 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 15% of the grade, and the in-class final examination for 35%.

The George Mason University Honor Code can be found at

<http://oai.gmu.edu/honor-code/masons-honor-code/>