SYST 621 / ECE 674 System Architecture Design and Evaluation (3.0:3) Spring 2014
Prerequisites: SYST 520 and SYST 620/ECE 673 or permission of instructor

Description: Architecture design and representation and the methodologies used to obtain them. Approaches based on software engineering constructs such as object orientation and service oriented architectures as well as systems engineering constructs such as structured analysis are used to design architectures and then represent them in conformance with architecture frameworks such as DoDAF. Executable models of the architecture are derived to be used for architecture evaluation. The roles of the systems architect and the systems engineer are discussed. Examples from current practice are used.

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Spring 2014: M 4:30 – 7:10 pm Classroom: Nguyen Eng. 2608

COURSE OUTLINE (subject to change as the course progresses)

SYST 621	ECE 674	System Architecture Design and Evaluation
Version 1		
Date	L#	Topic
1/21/2014	L1	Systems Engineering and Architecture Design
1/28/2014	L2	The Unified modeling Language (UML)
2/4/2014	L3	SysML Review; The DoD Architecture Framework
2/11/2014	L4	Capabilities and Project Viewpoints; Operational Concepts and Use Cases
2/18/2014	L5	Rule and Dynamics modeling ; Object Oriented Architecture Design;
2/25/2014	L6	Operational and Data Viewpoints
3/4/2014	L7	Service Oriented Architectures and Services Viewpoints
3/11/2014		Spring Break
3/18/2014	L8	Systems Viewpoint and Executable Models of Architectures
3/25/2014	L9	Architecture Evaluation Concepts
4/1/2014		Project presentations
4/8/2014	L10	BPMN; Structural methods
4/15/2014	L11	State Space methods
4/22/2014	L2	Evaluating Systems: Systems of Systems and Federated SOAs
4/29/2014	L13	Evaluating Systems of Systems: Resilient Architectures ; Closure
5/13/2014		Final Exam

Course notes and collateral readings will be made available for downloading through Blackboard. There are also ten papers that cover some of the material in the course and present several examples. No textbook is required; however, it will be a good idea to have a textbook on UML and Object Oriented design

Homework: There are weekly reading assignments and homework assignments (architecture design and evaluation).

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%.