

SYST 621 / ECE 674 System Architecture Design (3.0:3)

Spring 2010

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 architecture frameworks are used to describe them. 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 2010: M 4:30 – 7:10 pm Classroom: IN 133

COURSE OUTLINE (subject to change as this is a revised course)

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| 1/25/2010 | 1. Systems Engineering and Architecture Design |
| 2/1/2010 | 2. UML Review (Dr. Wagenhals) |
| 2/8/2010 | 3. DoDAF and related Architecture Frameworks |
| 2/15/2010 | 4. Architecture Design; Operational Concepts and Use Cases |
| 2/22/2010 | 5. Loosely Coupled Systems and Service Oriented Architectures |
| 3/1/2010 | 6. Capabilities and Project Viewpoints; Rule Modeling |
| 3/8/2010 | Spring Break |
| 3/15/2010 | 7. Operational and Data Viewpoints; Data Models |
| 3/22/2010 | Midterm |
| 3/29/2010 | 8. Systems and Services Viewpoints |
| 4/5/2010 | 9. Documenting an Architecture |
| 4/12/2010 | 10. Executable Models of Architectures |
| 4/19/2010 | 11. Structured Analysis approach |
| 4/26/2010 | 12. Architecture Guidance – Architects and Systems Engineer |
| 5/3/2010 | 13. Project Review |
| 5/10/2010 | Final Exam |

Course notes and collateral readings will be made available for downloading through Blackboard. There are also five papers that cover some of the material in the course and present two examples.

Textbook: If you do not have a good textbook on Object Oriented Design, the following book is recommended: Blaha, M., and Rumbaugh, J., *Object Oriented Modeling and Design with UML*, 2nd Ed., Prentice Hall, 2005.

Homework: There are weekly reading assignments and homework assignments.

Grading: Homework sets will count for 40% of the final grade. There will be a midterm examination (30%) and an in-class final examination (30%).