

SYST 520 System Design and Integration (3:3:0).

Prerequisite: Graduate standing.

System design and integration methods are studied and practiced, including both structured analysis and object-oriented based techniques. The course includes the development process of functional, physical, and operational architectures for the allocation and derivation of component-level requirements for the purpose of specification production; examination of interfaces and development of interface architectures. Life cycle of systems is addressed; generation and analysis of life cycle requirements. Software tools are introduced and used for portions of the systems engineering cycle.

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Course Call numbers: SYST 520 001 72832; SYST 520 621 76861

Fall 2006: W 4:30 – 7:10 pm in Room IN 131 (Innovation Hall)

COURSE OUTLINE (subject to change)

- 8/30/2006 Overview of Systems Engineering; Approaches to Design, WebCT ; B1 & Notes
- 9/6/2006 Requirements and design definition; Systems Engineering Design Process; CORE; B2, B6
- 9/13/2006 Use cases, Structured Analysis, Process modeling: IDEF0; Sets A5, B3 & B12.3 and B4.2
- 9/20/2006 Data Flow Diagrams, Data Modeling
- 9/27/2006 Data Modeling and Rule Modeling
- 10/4/2006 Functional Architecture; B7
- 10/11/2006 Physical Architecture and Design; B8 and B9
- 10/18/2006 Behavioral Models and Executable Model of the Design; B12
- 10/25/2006 Interface Design and System Integration and Quantification; B10 & B11
- 11/1/2006 Midterm
- 11/8/2006 The Unified Modeling Language: Basic Concepts; A2
- 11/15/2006 The Unified Modeling Language: Diagrams; A8, A9, A11, A12
- 11/29/2006 Object oriented Design: A8, A9, A11, A12
- 12/6/2006 The Systems Modeling Language (SySML)
- 12/13/2006 Final Exam

Textbooks for Course:

(1) Dennis M. Buede, *The Engineering Design of Systems*, Wiley, 2000, NY.

(2) Scott W. Ambler, *The Object Primer*, Cambridge University Press, 2004, NY.

Bx denotes chapter x in Buede; Ax chapter x in Ambler

Detailed class notes by A. H. Levis and A. P. Sage

Student Evaluation Criteria: Homework 40%; Midterm 30%; Final 30%