

# SYSE 4000 Integrated System Engineering

## General Information:

### *Course Information*

Credit Hours: 3    Lecture:                    3 Hours                    Lab: None

### *Catalog Description:*

Explores life cycle of systems; generation and analysis of life cycle requirements and development of functional, physical, and operational architectures for the allocation and derivation of component-level requirements for the purpose of specification production. Examines interfaces and development of interface architectures. Introduces and uses software tools for portions of systems engineering cycle.

*Prerequisites:* SYSE 3010

### Required Texts:

- The Engineering Design of Systems, Dennis Buede, John Wiley and Sons, Inc. 2000, ISBN 0-471-28225-1
- UML Distilled Second Edition, Martin Fowler, Addison Wesley Longman, Inc., 2000, ISBN 0-201-65783

## **Course Competencies:**

Upon completion of this course each student will be able to:

- Identify the appropriate systems architecture for different systems requirements.
- Apply the appropriate systems development methodology to the appropriate system.
- Provide both the structured analysis view and object oriented view of systems design.
- Apply integrated systems design software such as CORE and Rationale Rose.
- Apply interaction diagrams, state diagrams, and activity diagram modeling to systems.

## **Course Outline**

Topics covered in this course include:

- Overview of Systems Engineering Design
- Modeling and Process Modeling and Requirements Engineering
- Functional Architecture Development
- Physical Architecture Development
- Operational Architectures
- Decision Analysis for Design
- Introduction to Object Oriented Modeling
- Use Cases and Class Diagrams In Class
- Interaction Diagrams, Packages and Collaborations, State
- Activity Diagrams and Physical Diagrams
- Integration and Qualification

## **Grading Policy and Assignments:**

Students will be evaluated based on the combination of class activities. The final grade will be assessed with the following criteria:

<b>Grading</b>		<b>Assessment</b>	
A	90% or better	Exams (2)	30%
B	80% or better	Final exam	30%
C	70% or better	Projects (3)	30%
D	60% or better	Homework	10%
F	Less than 60%		