

SYE 6015, Systems Analysis and Design Summer 2012

Instructor: Dr. Adeel Khalid
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Phone: 678-915-7241 (Email Preferred)
Class: Wednesdays 6:00 to 8:30PM, and asynchronous
Class Material: GaVIEW VISTA 8 <https://spsu8.view.usg.edu>
Office Hours: By Appointment

Required Textbook:

Charles S. Wasson, *System Analysis, Design, and Development – Concepts, Principles, and Practices*, John Wiley & Sons, Inc. New York, (2006). ISBN – 13 978-0-471-39333-7

Course Description:

The purpose of this course is for the student to learn how to apply the basic methods used to analyze and design complex systems that will meet the needs of multiple stakeholders over the system life cycle. We will continue to develop the analytical thinking processes unique to the systems engineering perspective. The course builds on and elaborates the concepts and principles studied in SyE 6005. The goal is to make the systems engineering process and the responsibilities of the systems engineer more concrete. Students will apply systems engineering design and analysis principles to the virtual design of a contemporary complex system selected by the professor. Topics covered will follow approximately the same order as used in the analysis, design and development of an engineering system. Upon successful completion of the course, the student will be able to support the successful creation of complex systems. The course will develop practical skills used by systems engineers and managers and will be useful for discipline-oriented engineers who work to develop complex systems.

Course Outcomes

Students will be able to:

1. Represent and model analytically and graphically the functional, physical and operational characteristics of complex systems.
2. Communicate their understanding of the role and relationships of the multiple functions needed to design systems.
3. Identify and transform stakeholder needs into specifications and requirements.
4. Understand and apply principles of interface design.
5. Understand decision analysis and associated risks during each phase of system life cycle.

Course Topics

The lectures will cover all aspects/phases of complex systems creation and will include but not be limited to the following topics:

- Analysis and Definition of Needs and Operational Requirements

- Definitions of System Boundaries and Interfaces
- Identification of Constraints and Analysis of Context
- Design Concept Exploration and Definition
- Modeling Architectures
- Technology/Engineering Development
- Risk Analysis
- Integration, Testing and Qualification
- Production and Operations Support
- Trade-off Analysis
- Function Allocation
- Managing Complexity

References:

The Engineering Design of Systems, Models and Methods by Dennis M. Buede, John Wiley and Sons, 2000.

Systems Engineering, Principles and Practice by Alexander Kossiakoff and William N. Sweet, John Wiley and Sons, 2003.

Grading: Your grade will be determined as follows:

	Percentage
Homework / Class Participation	10%
Project	25%
Exam 1	30%
Exam 2	35%

Professional Behavior and Academic Integrity

All students are expected to abide by the professional and ethical standards established by SPSU. The instructor reserves the right to remove any student from the course if their behavior is of a disruptive and disrespectful nature or if there is evidence of academic dishonesty.

For assignments, take home tests and the project the rules are simple. You are to do your own work. You are not to consult or share work with other students in this class, or in previous classes. You can use any reference books you wish. Ultimately, students are responsible for familiarizing themselves with the SPSU policy on plagiarism and academic honesty.

Make-up Exams: In general there will be no make-up exams given. Please let me know in advance of any exams that will be missed for an institute approved reason.

Re-grades: Requests for re-grades must be made in writing (be specific) between 24 hours and 1 week after an assignment or exam is returned.

Reading Assignments: Students are expected to read the text and to remain current with the classroom presentations.

Attendance: Attendance in the weekly Horizon Live lecture and discussion is strongly encouraged. **Speakers** and a **microphone** will be required for the Horizon Live chats. Generally students who participate and keep current with the course progress perform better on the exams. The lectures will be archived for reference.

Assignments and Discussions: Occasionally problems or questions will be assigned to reinforce material. Assignment and Discussion responses will be graded as A, A- and B. When calculating your final grades, A will equal 100%, A- will equal 90% and B will equal 80%.

Exams: There will be two exams in the semester (given in GaVIEW Visa 8). The format for the exams will be discussed before the first exam.

Disability Statement:

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the counselor working with disabilities at [678-915-7244](tel:678-915-7244) as soon as possible to better insure that such accommodations are implemented in a timely fashion.

Tentative Course Schedule:

The following course schedule is tentative. Students are expected to do the reading assignment for each class period **before** coming to class on that day. The assignments listed below are expected to be submitted before 6:00pm on Wednesday nights. 10% penalty will apply for late submissions. Assignments submitted after 24 hours of due time will not be accepted.

Tentative Textbook Reading Assignments Schedule

Date	Topic	
5/23	Chapters 1-7	
5/30	Chapters 8-17	
6/06	Chapters 18-23	
6/13	Chapters 24-31	Project Assigned
6/20	EXAM 1	
6/27	Chapters 32-40	
7/04	Chapters 43-49	
7/11	EXAM 2	
7/11	Project Due	

Revised 5-12-12

This syllabus/schedule may be changed to suit the needs of the class. Remember your professor wants you to succeed. Let us make it a great semester!