TSYS School of Computer Science
Turner College of Business and Computer Science
Columbus State University

Course Title: CPSC 6177 – Advanced Software Design.

Official Course Description: Examines software requirements and design methodologies. Studies defining software requirements: interacting with end-users to determine system requirements and identifying functional, performance, and other requirements. Examines techniques to support requirements including prototyping, modeling, and simulation; the relation of requirements to design; design in the system life cycle; and hardware versus software trade-offs. Discusses subsystem definition and design and covers principles of design, including abstraction, information hiding, modularity, and reuse. Uses examples of design paradigms.

Course Objective: Upon completion of this course, students will demonstrate an understanding of software requirements, software design methodologies, software design processes, and emerging topics in this research area.

Course Outcomes:

- Students will demonstrate knowledge of software requirements
- Students will demonstrate knowledge of software design methodologies
- Students will demonstrate knowledge of software design processes
- Students will demonstrate knowledge of software architectural design
- Students will demonstrate knowledge of object-oriented design
- Students will demonstrate knowledge of real-time software design
- Students will demonstrate knowledge of user interface design

Recommended Textbook: Ian Sommerville, Software Engineering, 8th (or 9th) edition, AddisonWesley, 2007.

Course Outline:

- Review of Software Process Concepts
- Software Requirements
- Requirements Engineering Process
- Software System Modeling and Specification
- Software Architectural Design
- Object-oriented Design
- Real-time Software Design
- User Interface Design

Class Format:

- Instructional Delivery via D2L
- Online Course Materials

- Discussion Topics
- Assignments
- Final Exam

Instructor: Angkul Kongmunvattana, Ph.D. (Associate Professor of Computer Science)
Email: Please use Email tool in D2L system for class related communications

Important Dates:

- Last Add/Drop Date — August 16, 2013
- Deadline to Withdraw — September 6, 2013
- Fall Break — October 7 - 8, 2013
- Final Exam — December 4, 2013

Tentative Class Schedule

Weeks	Subjects
1 (August 12 – 18)	Class Administration
2 (August 19 – 25)	Software Requirements
3 (August 26 – September 1)	Requirement Engineering Process
4 (September 2 – 8)	System Models
5 (September 9 – 15)	Inheritance Models
6 (September 16 – 22)	Software Architectural Design
7 (September 23 – 29)	Modular Decomposition Methods
8 (September 30 – October 6)	Architectural Models
9 (October 7 – 8)	Fall Break (No Class)
10 (October 14 – 20)	Object Oriented Design
11 (October 21 – 27)	Object Oriented Design Process
12 (October 28 – November 3)	Design of Real-Time Software
13 (November 4 – 10)	User Interface Design
14 (November 11 – 17)	Research Topic in SE
15 (November 18 – 24)	Self-Study for Final Exam
16 (November 25 – Dec. 2)	Thanksgiving Break (No Class)

The points in this class will be distributed as follows:

- Discussion Topics 30%
- Assignments 45%
- Final Exam 25%

Final grades in this class will be determined as follows:

A: 90 and above
B: 80-89
C: 65-79
D: 55-64
F: <55

Notes:

- Students are responsible to study all online materials, all assigned readings, and all information posted on class website in D2L, including any corrections or changes in due dates, assignments, exams, etc.
- Students are not permitted to submit extra work in an attempt to raise grade.
- No late submissions will be accepted except under the direst of circumstances.
- Partial credits are given to incomplete assignments with substantial details of thought process on the work carried out to obtain the answers.
- Requests for pre-grading or do-over of assignments will be ignored and discarded.

Policy on academic integrity: Students are encouraged to study together; however, each student must individually prepare his/her own submission. Cheating or plagiarism is not permitted and will be sanctioned according to the CSU policy on academic standards. You should carefully read the section on Academic Misconduct in the Student Handbook. Your enrollment in this course implies that you have read it, and that you subscribe to the principles stated therein.

"If you have a documented disability as described by the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, Section 504, you may be eligible to receive accommodations to assist in programmatic and/or physical accessibility. We recommend that you contact the Office of Disability Services located in Schuster Student Success Center, room 221, 706-507-8755 as soon as possible. The Office of Disability Services can assist you in formulating a reasonable accommodation plan and in providing support. Course requirements will not be waived but accommodations may be able to assist you to meet the requirements. Technical support may also be available to meet your specific need."