CS552A - Software Design Strategies

Spring Term: January 14 – April 29, 2003

Instructor: Dr. Vladimir V. Riabov, Associate Professor, MA/CS Department, Rivier College
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COURSE DESCRIPTION:

This course covers techniques and methodology of commercial software engineering practices. The system software life cycle processes used in industry today and methods of graphically representing software, data and control will be learned.

COURSE OBJECTIVES:

Students will be introduced to the software engineering design process. Topics covered include the software life cycle, software quality, requirements analysis, architectural design, data design, detailed design methods, software project management, and miscellaneous topics.

COURSE REQUIREMENTS:

Students will participate as members of one of several teams on a software project. There will be design and code reviews and a student project leader will assure timely delivery of the results before the end of the term. The software is expected to be integrated and run without error on a computer in the Rivier College Computer Lab. Each person will have a specific "role" on the team and will receive a grade for efforts as an individual team member as a team grade.

COURSE TEXTBOOK:

Sommerville, Ian: *Software Engineering*, 6th Edition; Addison-Wesley-Longman, Reading, MA, (2001).
Slides can be downloaded from URL: http://www.comp.lancs.ac.uk/computing/resources/SE6/Slides/index.html;
Software Engineering Resources: http://www.comp.lancs.ac.uk/computing/resources/ser/SE.links.html.

COURSE PREREQUISITES:

Preliminary Core Courses (C/C++ or Java and Data Structures)

EXAMINATIONS and GRADING:

Weekly Homework Assignments	60%
Team Software Project	30%
Surprise Quizzes	10%
Presentations, Active Participation	up to 5 Points extra credit

CLASSROOM POLICIES:

Any late assignments will receive a 10% grade discount. Assignments must be completed on time. Only those situations involving instructor's permission will be exempt from this policy. Instructor must know in advance of class that a student will not be present or an assignment will be late.

COMPUTER LABORATORY:

Students will be required to use the College computers in the Computer Lab for coding and testing the software. Since this is a team project all software must be available in a single place. The Lab equipment can be used between 9 a.m. and 10 p.m. If you have any problems with the equipment, etc., contact Sister Martha's office in the Computer Lab.

COMPUTER LANGUAGES:

Either Java or C/C++ may be used. The Rational Software Development Suite may be used for the team project development. The Project Team Leader will be responsible for assuring designers create "compatible" modules and properly link modules, which are not from the same source language.

INSTRUCTOR AVAILABILITY:

I will be available before and after class, during the office hours at my office (STH-312) and via telephone: (603) 897-8613 or E-mail: vriabov@rivier.edu (E-mail is a preferable form for communication).

CLASS SCHEDULE:

Week	Date	Subject	Output from Class	Text Reading
01	Jan. 14	Intro: SW Eng., System Eng.		Chs. 1, 2
01	Jan. 14	SW Life Cycle, Project Mgmt.	Form Project Teams	Ch. 3, 4
02	Jan. 21	Requirements, Specs.	Team Project TOPIC Due	Chs. 5, 6
03	Jan. 28	SW Design Tools, Formal Spec	Homework #1 Due	Chs. 7, 9
03	Jan. 28	System Models, Prototyping	Functional Spec Due	Ch. 8; Notes
04	Feb. 4	SW+Arch. Design, Reliability	Functional Spec FROZEN	Ch. 10; Notes
05	Feb. 11	Distributed Systems, Data Structures.	Homework #2 due	Ch. 11; Notes
06	Feb. 18	Functional & Modular Design	Homework #3 due	Ch. 13
06	Feb. 18	Object-Oriented Design		Ch. 12
	Feb. 25	**Winter Vacation**	**NO CLASSES**	
07	Mar. 4	User Interface Design	DESIGN SPEC due	Ch. 15
08	Mar. 11	Verification and Validation	Homework #4 due	Ch. 19
08	Mar. 11	DESIGN REVIEW, Case Tools		Notes
09	Mar. 18	Software Testing	Design Rev Report Form due	Ch. 20
10	Mar. 25	Software Metrics & Quality	Homework #5 due	Ch. 20; Notes
11	Apr. 1	Software Cost Estimating	FROZEN Revised Design Spec	Ch. 23
11	Apr. 1	Managing People		Ch. 22
12	Apr. 8	Quality Management	SW WALK-THROUGH Form	Chs. 24, 25
12	Apr. 8	Software Change; Evolution	Homework #6 due	Ch. 27
13	Apr. 15	Re-Eng., Config. Management		Chs. 28, 29
14	Apr. 22	Team Presentations	Project Manager Status due	
14	Apr. 22	Team Presentations	Source Listings & SW Docs due	
15	Apr. 29	Team Presentations	(Use Team Cover Sheet for listings)	
15	Apr. 29	Team Presentations	Software Accepted/Rejected	

Tuesdays, 5:30 PM – 7:30 PM