

Master Course Syllabus
School of Engineering and Computer Science
Washington State University Vancouver
CS 420 [CAPS]
Software Design Project I
3 Semester Hours
(3 lecture hours)

Catalog Description

Development of software in a team environment; project management; unit and integration testing, bug tracking, configuration management, software process models; object-oriented design with UML.

Prerequisite Courses

- CS 320 with a C or better
- CS 360 with a C or better or concurrent enrollment
- Senior standing
- Admitted to the major in Computer Science

Prerequisite Topics

- Experience with an object-oriented programming language (e.g., Java or C++)
- Experience with a software design tool (e.g., Rational Rose, Poseidon, Visio)
- Technical Writing
- Experience with the software development process (requirements analysis, specification, design, implementation, testing)
- Use of UNIX or Windows environment for coding, compilation, debugging and testing

Measured Course Outcomes

Students taking this course will:

1. Identify a set of software requirements for a real-world problem. (Contributes to performance criterion 1-a.)
2. Develop a high-level software architecture design based on project sponsors' requirements. (Contributes to performance criterion 2-a.)
3. Communicate with project sponsors to elicit requirements and get feedback on project deliverables. (Contributes to performance criterion 3-c.)
4. Develop a project plan containing a list of deliverables, associated timelines, and responsible personnel. (Contributes to performance criterion 5-a.)
5. Share responsibilities and information on schedule with others on a team. (Contributes to performance criterion 5-b.)

Required Textbooks

No Required Textbook.

Reference Material

- *UML Distilled*, Martin Fowler, Addison Wesley Inc.

- *Software Engineering*, Ian Sommerville, Addison-Wesley.
- *Software Engineering, A Practitioner's Approach*, Roger Pressman, McGraw Hill.

Major Topics Covered in the Course

1. Students will work on a large software project that requires the coordinated efforts of a team to be successful.
2. Software Engineering in a team environment will include the following topics: a. Team management b. Project planning c. Version control
3. Students will experience, as a team, each phase in a software process model that must include:
 - a. Software requirements and specification
 - b. Object oriented design and programming

Projects

Programming Project Area	Weeks
Team-based project planning	1
Team-based software design	2
Team-based programming	4

Students will work on a substantial software project in a team setting.

Design, Implementation and Analysis

This course introduces students to team based software engineering with emphasis on project management, requirements analysis, specification, and object-oriented design. Students, as a team, incrementally develop a software product to give them hands-on experience with software engineering principles. The objective is to experience particular methods in each phase of the software development lifecycle.

All student programming assignments require the student to analyze software requirements.

CS2013

This course provides coverage of CS2013 knowledge areas. Values listed are minimum course hours dedicated to the topic, percentages indicate the fraction of CS2013 knowledge area topics covered (acceptable values are: <25%, 25-75%, >75%, or 100%).

Area	Tier 1	Tier 2	Elective
SE/Software Processes		1 (100%)	
SE/Software Project Management		2 (100%)	
SE/Requirements Engineering		2 (100%)	
SE/Software Design		3 (25-75%)	

Course Coordinator:	Xinghui Zhao
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