

CS 362 – Software Engineering II

Catalog Description: Introduction to the "back end" of the software engineering lifecycle implementation; verification and validation; debugging; maintenance.

Credits: 4

Prerequisites: CS 261 and Experience with object-oriented programming and data structures (e.g. CS 161, CS 162, CS 261). CS 361 is recommended as a prerequisite or corequisite.

Courses that require this as a prerequisite: CS 462

Structure: Three 50-minute lectures per week

Instructors: Alex Groce

Course Content:

- Software verification and validation, including: test plan development; test design and construction; test automation; white-box, black-box, and regression testing techniques; software inspections
- Software maintenance: types of maintenance; program understanding methods; configuration management and use of configuration control tools; the use of automated product build tools; fault localization strategies and the use of automated debugging tools

Learning Resources: [Revised Winter 2010]

- *Introduction to Software Testing*, Amman and Offutt (required)

Course Learning Outcomes: (* indicates quantitative outcome—see Criterion 4)

At the completion of the course, students will be able to...

1. **Apply** automated tools such as *make* and CVS in a realistic setting (ABET Outcomes: A, I)
2. **Describe** the cost-benefit trade-offs inherent in the use of automated tools for building software and configuration management (ABET Outcomes: B, C, I)
3. **Describe** several techniques for validating and measuring the quality of software (ABET Outcomes: A, B)
4. **Apply** testing techniques, including black-box and white-box techniques, automatic testing activities, and regression testing* (ABET Outcomes: A, B, C, I)
5. **Use** appropriate techniques and tools, including a debugger, to locate program faults (ABET Outcomes: A, B, C, I)
6. **Describe** several types of maintenance processes associated with correcting and enhancing software systems (ABET Outcomes: A, B)
7. **Participate** effectively in a software inspection (ABET Outcomes: A, B, C, I)
8. **Participate** effectively in a team environment* (ABET Outcomes: D, F)

Students with Disabilities:

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for

contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Link to Statement of Expectations for Student Conduct, i.e., cheating policies

<http://oregonstate.edu/admin/stucon/achon.htm>