CS362

Course Description

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

Prerequisites: CS 261

Other Prereqs:

Experience with object-oriented programming and data structures (e.g., CS 161, CS 162, CS 261). CS 361 is recommended but not required.

Course Credits

This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits.

Class Expectations

You can expect to spend 8 to 10 hours a week on this course. Many of the topics we cover could be an entire course by themselves! The objective of this course is to give you an overview of each topic. You will test your understanding through assignments, projects, and exams.

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

Measurable Student Learning Outcomes

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

• Apply automated tools such as make and Git in a realistic setting

• Describe the cost-benefit trade-offs inherent in the use of automated tools for building software and configuration management

- Describe several techniques for validating and measuring the quality of software

- Apply testing techniques, including black box and white box techniques, automatic testing activities, and regression testing

- Use appropriate techniques and tools, including a debugger, to locate program faults

- Describe several types of maintenance processes associated with correcting and enhancing software systems

- Participate effectively in a software inspection

- Participate effectively in a team environment

Resources (Optional)

- Lessons Learned in Software Testing, by Cem Kaner, James Bach, and Bret Pettichord;

- Debugging by David J. Agans

Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations