CMPT 473 - D100 Software Testing, Reliability and Security

Instructor(s): Nick Sumner  
SFU Surrey

Calendar Objective/Description:
Methods for software quality assurance focusing on reliability and security. Test coverage and test data adequacy including combinatorial testing, MC/DC testing, and mutation testing. Security engineering techniques for vulnerability discovery and mitigation including fuzz testing. Testing techniques will be applied to the assessment of external open source software.

Instructor’s Objectives:
The goal of this course is to provide students a comprehensive understanding of the quality factors in software as well as the tools, technologies and techniques that may be used to assess and improve software quality. Students will apply these concepts to quality assessment and improvement of external open source software.

Prerequisites:
(CMPT 275 or CMPT 276) and 15 upper division CMPT units.

Topics:
- Overview of software quality assurance
- Defining quality: requirements and specifications
- Security as a fundamental aspect of quality
- Quality by design: building in quality
- Program verification technologies and methods
- Testing methods - white box, black box, control flow, data flow
- Test data assessment: when have you tested enough?
- Standards for software quality assurance

Grading:
40% assignments; 30% exams; 30% quizzes and homework

Academic Honesty Statement::
Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student Conduct Policies (http://www.sfu.ca/policies/gazette/student.html).