

CS 763: Automated Software Testing

Objectives

At the completion of this course, students will:

- Understand the fundamental concepts necessary to automate software testing
- Have theoretical background in understanding of automated testing
- Have a thorough understanding to automate design, generation, and execution of test cases
- Have a knowledge of the existing methods of automated test generation
- Have the competencies required to assess automated software testing methods
- Understand the techniques necessary to automate white-box and black-box testing

Prerequisites

- CS 487.

Syllabus

- Rational and forces behind automated software testing
- The process of automated software testing
- Testing Methodologies/Techniques for code-based and specification-based testing
- Automating test design and model-based testing
- Automating test generation: test cases and test data generation
- Algorithms of automated test data generation
- Automating test execution: capture replay, oracles, and scripting techniques
- Automating test management: defect tracking and requirement traceability
- Automated regression testing and test suite reduction
- Impact of automation on quality of software products and productivity of testing engineers

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