CEN 5076 - Software Testing

Catalog Description:
Introduce tools and techniques used to validate artifacts developed during the software development process. Included topics are: model validation, software metrics, implementation-based testing, specification-based testing, integration testing and systems testing. (3 credits)

Prerequisite:
CEN 4010 – Software Engineering I or CEN 5011 – Advanced Software Engineering.

Type
Can be an Elective for MSCS, MSIT, MSTN, and Ph.D. students

Course Objectives:
Graduate students in Computer Science and Information Technology will learn how to validate software artifacts using both specification-based and implementation-based testing techniques, as well as, use testing tool to automate the testing process.

Topics
Review the phases of the software process (1 week)
Techniques and tools to validate the following models (3 weeks):
- Requirements (Use Case)
- Analysis
- Design
- Deployment

Planning and documenting the testing process (1 week):
- Test plans
- Test cases

Validation of the software implementation (Sequential, Concurrent and Distributed systems) (5 weeks):
- Software metrics
- Implementation-based testing
- Specification-based testing
- Integration testing
- Systems testing
- Regression testing

Current research (4 weeks)
- Testing theory
- Testing concurrent systems
- Testing distributed systems

Required Text: Aditya P. Mathur. “Foundations of Software Testing” 2008 Edition, Pearson, ISBN 9788131716601.

Recommended Text: Robert V. Binder, “Testing Object-Oriented Systems: Models, Patterns and Tools”, Addison-Wesley 2000, ISBN 0201809389.

Other reading material: Relevant papers from conference proceeding and journals.

Last Update
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