CS 3210: INTRODUCTION TO SOFTWARE SECURITY

Semester Hours: 3.0
Contact Hours: 3
Coordinator: Sankardas Roy
Text: Secure Coding in C and C++
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Year: 2013

SPECIFIC COURSE INFORMATION

Catalog Description:
Introduction to software security and secure programming guidelines. Basic security issues of programming languages, C and C++, and secure coding. Prerequisite: CS 2020. Approved for Distance Ed.

Course type: SELECTED ELECTIVE

SPECIFIC COURSE GOALS

- I can differentiate between secure coding and security software.
- I can describe the major security flaws of programs.
- I can have a basic proficiency in examining simple programs for safety issues.
- I can spot security vulnerabilities.
- I can mitigate certain vulnerabilities by refining the code and/or other structures.

LIST OF TOPICS COVERED

- Introduction (1 week)
  - Software security
  - Security software
  - Major security flaws
  - Types of threats
- OS Security (1.5 weeks)
- Memory, CPU and I/O
- Program security (6 weeks)
  - String handling
  - Dynamic Memory
  - Input validation, and others
- Concurrency and race condition (2 weeks)
  - Files: time of check and time of use
- Best Practices (2 weeks)
  - Secure programming guidelines
  - Standards
- Scripting (1.5 weeks)