CS 3210: INTRODUCTION TO SOFTWARE SECURITY

Semester Hours: 3.0   *Contact Hours:* 3

Coordinator: Sankardas Roy

Text: Secure Coding in C and C++

Author(s):   ROBERT SEACORD

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 education.

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)