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