ICS 686: Design of Information Assurance Systems

A. Course Description

Credits: 4

Prerequisites: ICS 682 Cryptography and Computer Security or with instructor’s consent. Graduate standing.

Lab Hours/Weeks: Corequisites: None

Lecture Hours/Week: MnTC Goals: None

This course is an integrated course emphasizing the design, analysis, and implementation of software information assurance system solutions by analyzing the current information infrastructures, software design, and applying software development, programming, testing, and engineering concepts.

B. Course Effective Dates: 01/10/2005 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Implement a security software design using the principles of software design for an information assurance system, including open design, separation of privilege, and complete mediation.
2. Evaluate security kernel principles, including operating system integrity and process invocation consistency, for a software design.
3. Build a sandbox for abuse case development.
4. Identify software deficiencies for system security.
5. Perform architectural risk analysis for a software system.
6. Perform code review using static analysis tools, construct a software testing plan and perform penetration and security testing.
7. Demonstrate expertise in reading peer-reviewed papers in the field of information assurance, and explain them in writing.
8. Know potential attacks to a software system, and can apply principles and techniques for preventing such attacks.

E. Learning Outcomes (MN Transfer Curriculum)

This contains no goal areas.

G. Special Information

Prerequisite: Graduate Standing. Note: Students are responsible to both be aware of and abide by prerequisites for ICS courses for which they enroll, and will be administratively dropped from a course if they have not met prerequisites.