Model Syllabus for TCSS 431
Version: February 2012
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Catalog Description

Covers cryptographic methods including public and private key algorithms, key exchange, and digital signatures. Examines protocols and systems that provide confidentiality, authentication, and data integrity including Kerberos, SSL/TLS, IPSEC, firewalls, intrusion detection systems, and virtual private networks. Prerequisite: a minimum grade of 2.0 in TCSS 321 and TCSS 325.

Preconditions

- Manipulate (procedural knowledge) and apply mathematical formalisms to solve problems.
- Identify principles of Western ethics that are embedded in or related to particular technological designs or technology policies.
- Describe some of the social, political, and economic consequences of technology use within particular contexts or cultures.

Course Student Learning Goals (to be added to syllabus handed out to students)

- Describe network security issues, challenges and mechanisms.
- Assess a network for vulnerabilities and threats.
- Evaluate the major types of cryptographic algorithms empirically through implementation and measurement.
- Identify and demonstrate the use of security tools and techniques to secure a network.

CSS Degree Student Learning Outcomes that this course contributes to (to be added to syllabus handed out to students). Note that the use of the term *outcome* here instead of *goal* is simply for purposes of integration with ABET and has no other semantic import.

[Below contains the complete list. Remove those that do not apply to this course]

a. an ability to apply knowledge of computing and mathematics appropriate to the discipline;

b. an ability to analyze a problem, identify and define the computing requirements appropriate to its solution;

c. an ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;

e. an understanding of professional, ethical and social responsibilities;

g. an ability to analyze the impact of computing on individuals, organizations and society, including ethical, legal, security and global policy issues;

i. an ability to use current techniques, skills, and tools necessary for computing practice.

UWT Student Learning Goals that this course contributes to (to be added to syllabus handed out to students)

[Below contains the complete list. Remove those that do not apply to this course]

Inquiry and Critical Thinking
Students will acquire skills and familiarity with modes of inquiry and examination from diverse disciplinary perspectives, enabling them to access, interpret, analyze, quantitatively reason, and synthesize information critically.

Civic Engagement
Students will define their roles and responsibilities as members of a broader community and develop an understanding of how they can contribute to that community for the greater good. They will have opportunities for service learning and other forms of active involvement such as undergraduate research.