

Model Syllabus for TCSS 430

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(Approved May 11, 2012)

Catalog Description

Covers the design and implementation of computer networks. Topics include TCP/IP protocols; local and wide area networks; routing, congestion, and flow control; network programming; and basic network security concepts such as authentication and encryption. Prerequisite: a minimum grade of 2.0 in TCSS 360 and TCSS 422.

Preconditions

- Code and test a subset of client requirements consistent with a design.
- Solve basic inter-process communications/coordination problems.

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

- Describe the structure and organization of computer networks, including the division into network layers, the role of each layer, and relationships between the layers.
- Understand the basic concepts of application layer protocol design such as client/server models.
- Implement a simple client-server program.
- Understand transport layer protocol design, including connection-oriented and connectionless models, techniques to provide reliable data delivery, and algorithms for congestion control and flow control.
- Understand network layer concepts and protocol design, including virtual circuit and datagram network designs, datagram forwarding, routing algorithms, and network interconnections.
- Compare and contrast different LAN technologies.
- Describe basic network security issues and potential solutions such as authentication and encryption.

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]

- 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;
- h. 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.