Administrative Unit: Computer and Mathematical Sciences Department

Course Prefix and Number: CISS 410

Course Title: Computer Networks and Communications

Number of: Credit Hours: 3 Lecture Hours: 3 Laboratory Hours: 0

Catalog Description: Network architecture and the OSI model. Physical protocols for data transmission and error detection/correction, data link concepts, LAN protocols, internetworking, and end-to-end service and security considerations. Prerequisite: CISS 370. Offered Odd Fall.

Prerequisite(s)/Corequisite(s): CISS 370.


Course Objectives:

- To understand data transmission issues and techniques.
- To develop a foundation in the operation of the OSI model and other current protocols and architectures.
- To describe issues pertinent to wide and local area networks.
- To learn the Internet architecture and protocols.

Measurable Learning Outcomes:

- Explain the OSI and TCP/IP protocols.
- Compare various transmission media such as guided and wireless.
- Compare data encoding schemes.
- Discuss synchronous and asynchronous transmission.
- Explain data link control.
- Explain multiplexing techniques and circuit switching issues.
- Compare WAN and LAN technologies.
- Evaluate Internet protocols.

Topical Outline (major areas of coverage):

- Protocols and architectures
- Data transmission and media
- Data encoding
- Synchronous and asynchronous transmission
- Data link control
- Multiplexing
- Circuit switching
- Packet switching
- ATM and frame relay
• Congestion control
• LAN and Wan design
• Internet protocols

Recommended maximum class size for this course: 20

Library Resources: Online databases are available at http://www.ccis.edu/offices/library/resources.asp. You may access them from off-campus using your eServices login and password when prompted.

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Date: September 12, 2005

NOTE: The intention of the master syllabus is to provide an outline of the contents of this course, as specified by the faculty of Columbia College, regardless of who teaches the course, when it is taught or where it is taught. Faculty members teaching this course for Columbia College are expected to facilitate learning pursuant to the course objectives and cover the subjects listed in the topical outline. However, instructors are also encouraged to cover additional topics of interest so long as those topics are relevant to the course’s subject. The master syllabus is, therefore, prescriptive in nature but also allows for a diversity of individual approaches to course material.

Office of Academic Affairs
12/04