STANDARDIZED COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER: CST 231

COURSE TITLE: Data Communications and Networking I

COURSE CATALOG DESCRIPTION:
This course provides an overview of modern business data, voice and video communications with an emphasis on the communication of data and information over networks. The course begins with examples of how communications were developed and are currently used. Communications and networking are defined, and communications models are described. Students discover various transmission media, line configurations, and characteristics of communications channels. Communications and networking equipment, software, and protocols are explained. Students learn the basics of communications networks and network configurations and are presented with examples of communications networks. *Formerly listed as CIS 123, not open to students who have successfully completed CIS 123.*

LECTURE HOURS PER WEEK: 3 **CREDIT HOURS:** 3

LAB HOURS PER WEEK (if applicable): n/a

PREREQUISITE(S): n/a

SECTION II

A. SCOPE:
This introductory course exposes students to a wide array of fundamental data communications and networking concepts. Course topics include: Data Communication and Networking Fundamentals; Communication/Networking Models, Media, and Equipment; Introduction to Local Area Networks and Wide Area Networks; and Introduction to Basic Network Management.

This course fulfills an Embedded Core Competency in the areas of "Critical Analysis and Logical Thinking (CA)" and "Continuing Learning/ Information Literacy (CL)"

B. REQUIRED WORK:
Will vary by instructor. Students will be expected to do all required readings, assignments, tests, and quizzes as outlined by their instructor.

C. ATTENDANCE AND PARTICIPATION:
Regular attendance, assignment submission timeliness, promptness and class/lab participation will be expected. Instructors will include specific attendance and participation policies requirements in their class syllabi.

D. METHODS OF INSTRUCTION:
Methods may include any of the following: lecture, lecture/discussion, small group, collaborative learning, experimental/exploration, distance learning, student presentations, computer demonstrations, or use of technologies such as audio-visual materials, and computer laboratory equipment. Emphasis will be on hands-on computer exercises and problems.

E. OBJECTIVES, OUTCOMES, and ASSESSMENT

Students' grades will be based on achievement of learning the objectives and outcomes listed below as measured by the instructor's methods of assessment:

LEARNING OBJECTIVES	**LEARNING OUTCOMES**	**ASSESSMENT METHODS**
To demonstrate an understanding of:	**Student will:**	**As measured by:**
Data Communication and Networking Fundamentals	a) Identify and explain basic communication components and terminology b) Identify and describe different types of communication networks c) Identify and differentiate various standards and organizations d) Discuss computer networking history e) Perform binary, decimal, and hexadecimal number conversions and calculations	Homework/lab assignments; case study projects; quizzes/exams; group discussions
Communication/Networking Models	a) Explain layered modeling in networking b) Identify, explain and compare the layers of the OSI Model and the TCP/IP Protocol Stack c) Analyze and illustrate data communication examples using layered networking models (CA 3) d) Analyze network failures and perform network troubleshooting using layered networking models (CA1, CA2, CA3) (CL1)	Homework/lab assignments; case study projects; quizzes/exams; group discussions
Communication/Networking Media and Equipment	a) Identify, categorize and describe various interconnecting communication devices b) Discuss and compare data signaling and transmission concepts c) Identify, categorize and describe various types of wired and wireless media d) Construct and test examples of wired media for use in LAN environments	Homework/lab assignments; case study projects; quizzes/exams; group discussions; Individual and Collaborative Projects
Introduction to Local and Wide Area Networks	a) Discuss and differentiate IP addressing concepts and classes b) Identify, categorize and describe various LAN-related topologies, technologies, and protocols c) Identify, categorize and describe various WAN-related topologies, technologies, and protocols	Homework/lab assignments; case study projects; quizzes/exams; group discussions
Introduction to Basic Network Management	a) Identify and discuss basic network monitoring, troubleshooting, and security concepts, technologies, and	Homework/lab assignments; case study projects; quizzes/exams; group

	techniques b) Discuss e-commerce, the Internet, and data communications in relation to an enterprise environment	discussions
Information Retrieval and Research as a Network Administrator	a) Investigate, research, and develop a final report and presentation on an appropriate topic (identified by the student) in the area of networking. Project should include: • An analysis of the topic in relation to the concepts learned throughout the course; • An evaluation of potential impacts of the topic in a network enterprise environment; • A well-supported conclusion as to the topic's relevance in current communication trends; • An explanation of any economic, legal, ethical, or social issues related to the topic. The project must also include a minimum of 3 sources and be formatted according to current MLA guidelines. (CL1, CL2, CL3, CL4) (CA1, CA2, CA3, CA4, CA5)	Individual Final Project and Presentation

Core Competency Assessment Artifact(S)

An assignment from this course that addresses all of the competencies noted above may be collected to assess student learning across the school

F. TEXT(S) AND MATERIALS:

An appropriate Data Communication and Networking I Text, such as: *Network+, Guide to Networks (current edition),* Course Technology

G. INFORMATION TECHNOLOGY:

This course is an information technology course and will require some computer lab time both for teaching and performing assignments. Students will require access to hands-on lab equipment such as data cabling equipment, routers, switches, hubs and host computer terminals. Students will also require network accounts with access to the Internet as well as file storage space.