CNT: Computer Networks Courses

Courses

CNT 3004  Introduction to Networks
College of Sci and Engineering, Department of Department of Information Tech
3 sh (may not be repeated for credit)
Prerequisite: (CGS 2920 AND COP 2253) OR COP 2334

This course introduces the technologies and skills used in the world of networking. Emphasis is on practical applications of networking technology to real-world problems. Students gain the knowledge necessary to design, install, and configure a local area network. Students will build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

CNT 3112  Routing and Switching Essentials
College of Sci and Engineering, Department of Department of Information Tech
3 sh (may not be repeated for credit)
Prerequisite: CNT 3004

This course provides students with intermediate level knowledge in the architecture, components, and operations of routers and switches in a small network. Content includes how to configure and troubleshoot routers and switches. Students will learn how to design and configure virtual LANs, inter-VLAN routing in both IPv4 and IPv6 networks, and routing protocols.

CNT 4007  Theory and Fundamentals of Networks
College of Sci and Engineering, Department of Computer Science
3 sh (may not be repeated for credit)
Prerequisite: (MAC 2233 OR MAC 1147) AND ((COP 2334 AND COT 3100))

A functional systematic examination of the key components and theories of modern computer networks, including protocol stack, mobile networking, network security, multimedia networking and network management. Emphasizes the internet for studying network fundamentals and includes the use of tools to analyze network operations.

CNT 4013  Connecting Networks
College of Sci and Engineering, Department of Department of Information Tech
3 sh (may not be repeated for credit)
Prerequisite: CNT 4701

This course enables students to put emphasis on network services required by converged applications in a complex network. Students learn how to configure, troubleshoot, and manage network devices, and resolve issues with data link protocols. Students will also implement and configure IPSec and virtual private network (VPN) in a complex network.

CNT 4014C  IT Administration
College of Sci and Engineering, Department of Department of Information Tech
3 sh (may not be repeated for credit)
Prerequisite: COP 2253 OR COP 2830

Introduction to principles behind design, installation, and support of organization’s LAN, WAN, network segment, intranet, or Internet, including maintenance of network hardware and software, and monitoring of network to ensure availability to system users. Topics include gathering of data to determine customer needs, identification, interpretation, and evaluation of system and network requirements and technical-management issues.

CNT 4403  Computer and Network Security
College of Sci and Engineering, Department of Computer Science
3 sh (may not be repeated for credit)
Prerequisite: ((COP 3530 OR COP 3022) AND (CNT 4007 OR COP 4635))

This course provides students with an understanding of the concepts of computer and network security using currently available technology. The course provides students with an understanding of the options available to mitigate threats within a system and teach students the techniques that can be taken to protect a network and communication assets from cyber threats.

CNT 4416  Cyber War Gaming
College of Sci and Engineering, Department of Computer Science
3 sh (may not be repeated for credit)
Prerequisite: CIS 4385 AND CNT 4403

Every organization, whether part of the government or the private sector, needs "battle-tested" IT personnel in order to defend its networks against attack. The most effective way to provide this experience is to recreate the exact scenarios, no matter how nefarious, they will see in the real world. This course provides exercises that use different specialties (network, security, visualization, software, etc.) into color-coded red and blue teams that perform specific roles in attacking and defending IT infrastructures.

CNT 4526  Wireless and Mobile Communications
College of Sci and Engineering, Department of Department of Information Tech
3 sh (may not be repeated for credit)
Prerequisite: CGS 2920 AND COP 2830

Introduces common wireless technologies and wireless network architectures including common carrier cellular networks. Learners will examine characteristics of these technologies and identify their roles in enterprise-class information technology operations. Learners will identify common tools and applications associated with these technologies and explain their roles in design, deployment and management of them. Wireless technologies strengths and weaknesses are described in the context of their effect on enterprise security, performance and cost management.
CNT 4701  Scaling Networks
College of Sci and Engineering, Department of Department of Information Tech
3 sh (may not be repeated for credit)
Prerequisite: CNT 3112
This course covers the architecture and operations of routers and switches in complex networks. Students learn how to configure and troubleshoot routers and switches in large networks. This course provides students with skills and knowledge needed to resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks. Students will also develop the skills needed to configure DHCP and DNS related servers in a network.

CNT 5407  System and Network Security
College of Sci and Engineering, Department of Computer Science
3 sh (may not be repeated for credit)
This course covers the basic strategies and tools that prepare students to engage in proactive and aggressive cybersecurity activities, with an increased focus on computer, network and system security. Students will learn about protection strategies which are most effective when dealing with cyber attacks, especially in an age of increased reliance on distributed devices. This course may require completion of graduate foundational courses in computer science or undergraduate coursework in computer networks and operating systems if a student has insufficient academic or professional experience in the field.

CNT 6519  Wireless Network Security
College of Sci and Engineering, Department of Computer Science
3 sh (may not be repeated for credit)
The objective of the course is to study and understand the security and research challenges of existing and emerging wireless networks. Students will learn about various security issues such as key management, privacy, authentication and secure data aggregation and the algorithms used to resolve these issues.