CET: COMPUTER ENGINEERING TECH

Courses

	Credit(s)	Contact	Lab
CET 1610C. CISCO ROUTER TECHNOLOGY.	3	2	2

CISCO ROUTER TECHNOLOGY Prerequisites: CET 2178C and CET 2486C This course focuses on switching technologies and router operations that support small-to-medium business networks. It includes wireless local area networks (WLANs) and security concepts. This is the second course of a three-part series in the CCNAv7 curriculum designed to prepare students for the Cisco Certified Networking Associate exam. (Special Fee: $36.00).

CET 2112C. DIGITAL SYSTEMS I.	3	2	2

DIGITAL SYSTEMS I Prerequisite: EET 1214C and either MTB 1329 or MAC1105 or department approval Introductory lecture/laboratory course in computer technology. Introduces principles and techniques required for development of analysis skills in digital circuitry. Topics include computer number systems; digital codes and parity error detection methods; Boolean algebra; Karnaugh mapping; logic gate minimization techniques; arithmetic operations via combination logic gate minimization techniques; arithmetic operations via combination logic; flip-flop timing and synchronization circuits; and pulse waveform generation. Laboratory projects provide hands-on experience in use of laboratory instruments and in techniques for measurement and interpretation of digital data. (Special Fee: $67.00).

CET 2113C. DIGITAL SYSTEMS II.	3	2	2

DIGITAL SYSTEMS II Prerequisite: CET 2112C or department approval. Intermediate lecture/laboratory course in computer technology. Introduces various digital subsystems (logic assemblies) and their use in digital computing and control systems and provides analytical tools necessary to perform analyses and problem diagnoses. Topics include counter/shift register systems and applications; digital subsystems using integrated circuit logic chips encoding/decoding techniques; data interfacing and busing; multiplex/demultiplex systems; analog/digital conversion techniques; static/dynamic memory systems; and computer system organization. Laboratory projects and demonstrations provide practical insight into capabilities and limitations of alternative methods of data transfer, storage and interface conversion commonly utilized in digital computing or control system applications. (Special Fee: $78.00).

CET 2114C. DIGITAL SYSTEMS.	3	2	2

DIGITAL SYSTEMS Prerequisite: EET 1214C and either MTB 1329 or MGF 1106 or MAC 1105 or department approval. This course provides students with a basic understanding of the characteristics and operation of digital systems. Topics include number systems, codes, logic gates, Boolean algebra, logic simplification and combinational logic. The course also include the study of digital counters and registers decoders and encoders, and multiplexers used in the applications of combinational and sequential logic. The laboratory exercises cover the measurement and analysis of digital circuits and devices.

CET 2118C. FPGA DESIGN USING VHDL.	3	2	2

FPGA DESIGN USING VHDL Prerequisite: CET 2114C or CET 2113C or department approval Introduction to the theory of FPGA (Field Programmable Gate Array) logic design with the implementation of VHDL (Very High Speed Integrated Circuit Hardware Description Language). Topics will include: combinational logic circuit design, graphical method for designing logic circuits, flip-flop designs, memory devices design, frequency division, encoders/decoders design, and counter design.

CET 2123C. FUNDAMENTALS OF MICROPROCESSORS.	3	2	2

FUNDAMENTALS OF MICROPROCESSORS Prerequisite: CET 2112C or CET 2114C or department approval. Introduction to basic principles of microprocessor hardware architecture and software programming. Students will be introduced to hardware architecture, software programming, interfacing Input/output devices, and hands on real-world applications. (Special Fee: $67.00).

CET 2178C. COMPUTER HARDWARE.	3	3	1

COMPUTER HARDWARE The computer hardware course is a hands-on laboratory-oriented course designed to introduce the student to the operation, support, and troubleshooting of PCs, peripherals, and network connectivity issues. Major terms covered in this course are hardware concepts, troubleshooting, repair, maintenance and support. This course prepares the student for the CompTIA A+ Hardware exam. (Special Fee: $67.00).

CET 2179C. A+ CONCEPTS (SOFTWARE).	3	2	1

A+ CONCEPTS (SOFTWARE) Hands-on laboratory-oriented course. An introductory course in microcomputer software and applications. This course is designed to introduce the student to different operating systems including Windows 9X, Windows NT, Windows 2000, and Windows XP. This course will prepare the students for the software examination of the CompTia A+ certification. This course includes a learning activity designed to ensure competence in oral communication.

CET 2486C. LOCAL AREA NETWORKS.	3	3	1

LOCAL AREA NETWORKS Presents essential material useful to students with no technical data processing or electronics background. Discusses different LAN techniques and matches merits of user's requirements to meet business needs. Case studies present real situations and appropriate solutions. (Special Fee: $67.00).

CET 2544C. COMPUTER VIRTUALIZATION TECHNOLOGY.	3	2	2

COMPUTER VIRTUALIZATION TECHNOLOGY Prerequisites: CET 2178C and CET 2486C This course is designed to provide students with a working knowledge of VMware Workstation as a leading virtualization product. In addition to learning how to install and use VMware Workstation, students will learn how to apply virtualization technology to set up virtual networks, provide for disaster recovery, create high-availability solutions with clustering, improve security and performance, and use management software to administer multiple virtual machines. (Special Fee $36.00).

CET 2588. NETWORK +.	4	4	0

NETWORK + Prerequisites: CET 2178C and CET 2486C or departmental approval. This course will identify the components of a LAN and determine the type of network design most appropriate for a given site; identify the different media used in network communications, distinguish between them, and determine how to use them to connect servers and workstations in a network; differentiate between the different networking standards, protocols, and access methods, and determine which would be most appropriate for a given LAN; recognize the primary network architectures, identify their major characteristics, and determine which would be most appropriate for a proposed LAN; identify the primary functions of network operating systems; determine how to implement and support the major networking components (including the server, operating system, and clients), propose a system for adequately securing data on a given LAN and protecting the system?s components, and distinguish between LANs and WANs.

CET 2615C. ROUTING & SWITCHING IN THE ENTERPRISE. 3 2 2

ROUTING & SWITCHING IN THE ENTERPRISE Prerequisite: CET 1610C This course is designed to prepare a student to apply and understand the advanced principles and applications of networking hardware. This course covers the advanced router configurations, LAN switching, network management, and advanced network design. This is the third of a four-part series designed to prepare students for the Cisco Certified Networking Associate exam. (Special Fee: $53.00).

CET 2620C. NETWORK FIREWALLS. 3 2 2

NETWORK FIREWALLS Prerequisite: CET 1610C This course is designed to prepare the student for the advanced applications and implementations of Wide Area Networks (WAN) hardware and technologies. The course will also allow the student to gain an in-depth knowledge of how to install and configure the security, networking, threat prevention, logging and reporting features of the Palo Alto Networks Operating System (PAN-OS). (Special Fee: $53.00).

CET 2660C. LINUX NETWORKING AND SECURITY. 3 2 2

LINUX NETWORKING AND SECURITY Prerequisite: CET 2486C and CNT 2417C This course provides an essential foundation for students requiring the Linux operating system to perform cyber security related operations. The course engages the student with numerous network security and digital forensics-related labs designed to introduce concepts and develop techniques essential for success in cyber security field. Students will engage in numerous interactive activities and hands-on exercises. Emphasis is made in the use of both open-source software and security-related utilities. (Special Fee: $53.00).

CET 2675C. VOICE OVER IP. 3 1.5 1.5

VOICE OVER IP Prerequisites: CET 1610C This course will focus on understanding the architecture of voice communication and will show how signaling, call quality, and PBXs work within data networks. The course also will provide real-world, multi-vendor options for integrating voice and data communication applications. (Special Fee: $71.00).

CET 2792C. INSTALLING AND CONFIGURING WINDOWS SERVER. 3 2 2

INSTALLING AND CONFIGURING WINDOWS SERVER Prerequisites: CET 2178C and CET 2486C OR CTS 1131C and CTS 1134C This course provides the student with the knowledge and skills necessary for installing, configuring, managing, and supporting the latest Microsoft network infrastructure. Major focus would be on the understanding of the network technologies most commonly used with Windows Server and IP-enabled networks. This course is part one in a series of three courses that provide the skills and knowledge necessary to implement a core Windows Server infrastructure in an existing enterprise environment. This course prepares the student for part one of the MCSA: Windows Server certification. (Special Fee: $71.00).

CET 2793C. ADMINISTERING WINDOWS SERVER. 3 2 2

ADMINISTERING WINDOWS SERVER Prerequisite: CET 2792C or department approval This course will provide the student with the knowledge and practical experience to perform task needed for day-to-day operations. Main topics include; managing account policies, administering Active Directory objects, managing and controlling resources, implementing group policies for security, and maximizing performance and responsiveness. (Special Fee: $50.00).

CET 2794C. CONFIGURE ADVANCED WINDOWS SERVER SERVICES. 3 2 2

CONFIGURE ADVANCED WINDOWS SERVER SERVICES Prerequisite: CET 2792C or department approval This course is intended for Networking Professionals with hands-on experience implementing, managing and maintaining a Windows Server environment who wish to acquire the skills and knowledge necessary to perform advanced management and provisioning of services within that Windows Server environment. This course is part three in a series of three courses that provide the skills and knowledge necessary to implement a core Windows Server infrastructure in an existing enterprise environment. This course prepares the student for part three of the MCSA: Windows Server certification. (Special Fee: $71.00).

CET 2830C. INFORMATION SECURITY. 3 2 2

INFORMATION SECURITY Prerequisite: CET 2660C and CET 2792C This course provides an overview of information security. This is a hands-on course designed to prepare students for the challenges facing network security. Students will learn information security terminology, principles of security, and basic types of intrusions. Students are also introduced to various ways to secure systems that store, process, and transport information. (Special Fee: $53.00).

CET 2854C. WIRELESS NETWORKS. 3 2 2

WIRELESS NETWORKS Prerequisites: CET 2486C and 2178C. This introductory course focuses on the design, planning, implementation, operation and troubleshooting of wireless networks. It covers a comprehensive overview of technologies, security, and design best practices with particular emphasis on hands-on skills in wireless networks.

CET 2880C. DIGITAL FORENSICS I. 3 2 2

DIGITAL FORENSICS I Prerequisites: CET 2660C, CET 2792C, and CNT 2414C This course offers a solid foundation to computer forensics investigations: preparing students to acquire and analyze digital evidence. The course covers tools and techniques and explains topics such as file structure, data recovery, e-mail and network investigations, and expert witness testimony. In addition, the student will gain practical knowledge in conducting digital investigations and preserving digital evidence that maybe used in court or corporate inquiries. (Special Fee: $50.00).

CET 2881C. DIGITAL FORENSICS II. 3 2 2

DIGITAL FORENSICS II Pre-requisite: CET 2880C Digital Forensics II builds upon the foundational knowledge learned in Digital Forensics I. Students will utilize industry standard tools to conduct examinations of various digital media and document their findings. Devices to be studied include computers (server, desktop, laptop), mobile devices (tablets, cellphones, smartphones, MP3 players, GPS), and devices such as DVRs and routers. Emphasis will be placed upon real-world digital forensics scenarios and the investigative thought process. At the conclusion of the class, students will be prepared to take the AccessData Certified Examiner (ACE) examination. (Special Fee $132.00).

CET 2890C. ADVANCED CYBERSECURITY OPERATIONS. 3 2 2

ADVANCED CYBERSECURITY OPERATIONS Prerequisite: CET 2830C and CET 1610C A proper network security posture must be comprised of multiple layers. This course provides a comprehensive analysis of a wide breadth of network security technologies that could be deployed to harden a network infrastructure against various attacks. The course covers the installation, and security configurations of various network devices including switches, access points, routers, proxy servers, firewalls, intrusion detection systems, intrusion prevention systems and other security and network appliances at different layers of the OSI model. The National Security Agency (NSA) and the Committee on National Security Systems (CNSS) has recognized this course for meeting the CNSS 4011 training standard. (Special Fee $36.00).

CET 2892C. ETHICAL HACKING. 3 2 2

ETHICAL HACKING Prerequisites: CET 2830C The overarching objective of this course is to arm the student with the practical knowledge necessary to integrate the defense-in-depth strategy, as detailed by the National Security Agency (NSA), in deploying, hardening, monitoring, and defending critical information infrastructure. The National Security Agency (NSA) and the Committee on National Security Systems (CNSS) has recognized this course for meeting the CNSS 4013 training standard. (Special Fee: $53.00).

CET 2894C. PROJECTS IN CYBER SECURITY: CAPSTONE COURSE. 3 2 2

PROJECTS IN CYBER SECURITY: CAPSTONE COURSE Prerequisite: CET2890C and CET 2892C The overarching objective of this course is to sharpen the student's Cyber Defense skills by preparing for and participating in Cyber Defense competitions at both the regional and national level. Specifically, students will be able to apply the skills, methodologies, tools, and practices they learned in previous Cyber Security-related courses to inventory a live network; conduct assessments and needs analysis; harden information systems, monitor the network infrastructure, detect and thwart attacks, respond to incidents, and prepare adequate reports. (Special Fee: $50.00).

CET 2930. SELECTED TOPICS IN COMPUTER ENGINEERING TECHNOLOGY. 1-5 variable

SELECTED TOPICS IN COMPUTER ENGINEERING TECHNOLOGY Prerequisite: Departmental approval. Selected topics in computer engineering technology based on the needs and areas of interest of the class and professor. May include laboratory and/or field work as part of the class. Can be repeated for up to 5 hours of credit and grade forgiveness cannot be applied.

CET 2942. INTERNSHIP IN NETWORKING. 1-4 variable

INTERNSHIP IN NETWORKING Prerequisites: CET 2830C and CET 1610C This course is a planned work-based experience that provides students with an opportunity to fine-tune skill sets learned in coursework and enhance workplace skills through supervised practical experience related to their career objectives. Each earned credit of Internship require a minimum of 80 clock hours of work. Multiple credit course. May be repeated for credit, but grade forgiveness cannot be applied. (Internship fee: $10.00).

CET 3136C. LOGIC DEVICES PROGRAMMING. 3 2 2

LOGIC DEVICES PROGRAMMING Prerequisite: CET 2113C or CET 2114C An in-depth study of hardware and software architecture of programmable logic devices. Topics include PLDs architecture and design of Altera hardware and software description language, HDL format and syntax, and representation of data in VHDL logic circuits. Minimum grade of C required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement. (Special Fee: $64.00).

CET 3464C. SOFTWARE APPLICATIONS IN ENGINEERING TECHNOLOGY. 3 2 1

SOFTWARE APPLICATIONS IN ENGINEERING TECHNOLOGY Prerequisites: Minimum grade of C in MAC 1105 Student is introduced to engineering software applications including virtual circuit creation and analysis (PSpice), procedural programming (MATLAB), and graphical programming (LabVIEW) to solve a variety of engineering related problems. Minimum grade of C if used to satisfy Electrical and Computer Engineering Technology B.S. degree requirement. (Special Fee: $76.00).

CET 4126C. MICROPROCESSOR PROGRAMMING. 3 2 2

MICROPROCESSOR PROGRAMMING Prerequisite: CET 2113C and CET 2123C and minimum grade of C in COP 3275 This course is designed to introduce the student to the hardware architecture and Software architecture programming of the microprocessors. Main topics include Microcomputer Assembly Programming, operating system environment, and the hardware characteristics of the microprocessor. A minimum grade of C is required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement. (Special Fee: $92.00).

CET 4190C. DIGITAL SIGNAL PROCESSING. 3 3 1

DIGITAL SIGNAL PROCESSING Prerequisite: Minimum grade of C in EET 3086C and CET 3464C This introductory signal processing course includes the study of signals and systems, transformation techniques, digital filter designs, and practical applications of DSP. Students will work on design projects to get an in-depth understanding of signals, systems, and DSP applications. Minimum grade of C required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement. (Special Fee: $57.00).

CET 4333. COMPUTER ARCHITECTURE. 3 3 0

COMPUTER ARCHITECTURE Prerequisite: CET 2113C and CET 2123C A study of the computer architecture. Major topics include instruction sets, modeling and analysis of computer systems, hardware and software interface, memory management, and system performance. Minimum grade of C required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement.

CET 4367C. MICROCONTROLLER DEVICES. 4 2 2

MICROCONTROLLER DEVICES Prerequisites: CET 2113C or CET 2114C, and CET 2123C and minimum grade of C in COP 3275C. A course emphasizing the design and programming of microcontrollers. Student will be introduced to embedded systems design, microcontroller architecture, software design basics, use of interrupts, general purpose digital interfacing, analog interfacing, timers and serial communication. Minimum grade of C required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement. (Special Fee: $61.00).

CET 4370C. ADVANCED PROGRAMMING APPLICATIONS. 3 2 1

ADVANCED PROGRAMMING APPLICATIONS Prerequisites: Minimum grade of C in EGN 3428 and CET 3464C. In this course, students will learn Python programming language to implement numerical and engineering applications. (Special Fee $64.00).

CET 4382. DATA COMMUNICATION AND NETWORKING.	3	3	0

DATA COMMUNICATION AND NETWORKING Prerequisite: EET 2325C and minimum grade of C in EGN 3428 An in-depth study of different layers in a computer network and processes related to each one of them. Topics include Physical, Data link, Network, Transport and Application Layers and their roles in communication of data in networking. Design and performance of a network will be analyzed through mathematical techniques. Minimum grade of C required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement.

CET 4542. COMPUTER ARCHITECTURE AND DATA COMMUNICATION.	3	3	0

COMPUTER ARCHITECTURE AND DATA COMMUNICATION Prerequisites: CET 2113C or CET 2114C, and CET 2123C and a minimum grade of C in EGN 3428. A study of computer organization and architecture, architectural performance issues, different layers in a computer network, and processes related to each one of them. Design and performance of computer architectures and networks will be analyzed through mathematical techniques.

CET 4663. COMPUTER AND NETWORK SECURITY.	3	3	0

COMPUTER AND NETWORK SECURITY Prerequisite: CET 2123C and a minimum grade of C in EGN 3428 This course introduces fundamental concepts and techniques of computer security. Topics include secure communications, secure operating systems, and network protection technologies such as firewall, intrusion detection systems, and access control policies. Minimum grade of C required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement.