CTEC - CYBER TECHNOLOGY

CTEC 115. TOPICS IN IT
1-3 Credits (1-3)
Topics to be announced in the Schedule of Classes. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 120. IT Infrastructure Support I
1-3 Credits (1-3)
Introduction to most common types of PC configurations, installations, and failures. This course will explore troubleshooting skills for maintaining and repairing common hardware and software related problems. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.

CTEC 127. Introduction to Internet of Things
1-3 Credits (1-3)
Exploration of the importance of IoT in society, components of typical IoT devices and future trends. IoT design considerations, constraints, interfacing and key components of networking will also be covered. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 130. Linux Workstation
1-3 Credits (1-3)
Installation, configuration, and maintenance of the Linux operating system. Covers file organization, user management, and system security. Addresses general procedures for working with and modifying the operating system. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 135. Windows Workstation
1-3 Credits (1-3)
Installation, configuration, and maintenance of the Windows operating system. Covers file organization, user management, and system security. Addresses general procedures for working with and modifying the operating system. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 140. Introduction to Database Design
1-3 Credits (1-3)
Introduction to basic relational database concepts including terminology, tables, queries, forms, and reports. The course teaches data modeling concepts, building Entity Relationship Diagrams (ERDs), mapping ERDs, and use of data management system applications. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 145. Introduction to Database Management
1-3 Credits (1-3)
Use of SQL to analyze complex business scenarios as well as to design and create, and manage databases. Course includes exposure to Application Express (APEX) to provide practical, hands-on activities. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.
Prerequisite(s): CTEC 140 or OECS 220.

CTEC 150. Mobile Application Programming
1-3 Credits (1-3)
Introduction to elements of mobile application coding including concepts, design strategies, and tools needed to create, test, and deploy applications for mobile devices. May be repeated up to 6 credits.

CTEC 152. JAVA Programming
1-3 Credits (1-3)
Introduction to concepts of programming in the Java language. Topics include data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging code. This is a hands-on course that does not require students to have prior programming experience. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 154. C++ Programming
1-3 Credits (1-3)
Introduction to concepts of programming in the C++ language. Topics include data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging code. This is a hands-on course that does not require students to have prior programming experience. May be repeated up to 6 credits.

CTEC 156. Python Programming
1-3 Credits (1-3)
Introduction to concepts of programming in the Python language. Topics include data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging code. This is a hands-on course that does not require students to have prior programming experience. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 158. Visual Basic Programming
1-3 Credits (1-3)
Introduction to concepts of programming in the Visual Basic language. Topics include data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging code. This is a hands-on course that does not require students to have prior programming experience. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 180. Introduction to Networking
3-4 Credits (3-4)
This course introduces the architecture, structure, functions, components, and models of the Internet and computer networks. Course includes the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations to build simple LANs, perform basic configurations for routers and switches. May be repeated up to 8 credits. Restricted to Las Cruces campus only.

CTEC 185. Routing and Switching Essentials
3-4 Credits (3-4)
This course covers the architecture, components, and operations of routers and switches in a small network. Students learn how to configure routers and switches for basic functionality. Course demonstrates how to configure and troubleshoot routers and switches to resolve common issues with RIPv1, RIPng, single area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. May be repeated up to 8 credits.
Prerequisite(s)/Corequisite(s): CTEC 180 or OECS 261. Restricted to Las Cruces campus only.

CTEC 220. Internship
1-3 Credits (1-3)
Work experience, directly related to a student's field of study, that provides an opportunity to explore career options while experiencing hands-on application, knowledge, and theory learned in the classroom. May be repeated up to 6 credits. Consent of Instructor required. Graded: S/U Grading (S/U, Audit). Restricted to Las Cruces campus only.
Prerequisite(s): (CTEC 120 or OECS 185) AND (CTEC 130 or OECS 204), AND (CTEC 180 or OECS 261).

CTEC 230. Introduction to Linux Server Administration
1-3 Credits (1-3)
This course addresses the implementation and support needs of IT professionals that are planning to deploy and support Linux Server(s). It

provides in-depth, hands-on training for IT professionals responsible for the planning, implementation, management, and support of Linux Server operating system(s). May be repeated up to 6 credits.
Prerequisite(s)/Corequisite(s): CTEC 130 or OECS 204. Restricted to Community Colleges campuses only.

CTEC 235. Introduction to Windows Server Administration
3 Credits (3)
This course addresses the implementation and support needs of IT professionals that are planning to deploy and support Window Server(s). It provides in-depth, hands-on training for IT professionals responsible for the planning, implementation, management, and support of Windows Server operating system(s).
Prerequisite(s)/Corequisite(s): CTEC 135 or OECS 207. Restricted to Las Cruces campus only.

CTEC 245. Fundamentals of Cloud Based Data Systems
1-3 Credits (1-3)
Introduction to the techniques and tools required to develop database driven web applications. The course teaches students how to design, develop, and deploy efficient and responsive, database-driven web applications using Oracle Application Express. Restricted to Community Colleges campuses only. May be repeated up to 6 credits.
Prerequisite/Corequisite: CTEC 240.

CTEC 255. Special Topics
1-3 Credits (1-3)
Topics to be announced in the Schedule of Classes. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

CTEC 280. Scaling Networks
3-4 Credits (3-4)
This course covers the architecture, components, and operations of routers and switches in WLANs and complex networks. Students learn how to configure routers and switches for advanced functionality and to resolve common issues with OSPF, EIGRP, and STP in both IPv4 and IPv6 networks. May be repeated up to 8 credits.
Prerequisite(s)/Corequisite(s): CTEC 185 or OECS 262. Restricted to Las Cruces campus only.
Learning Outcomes
1. Configure and troubleshoot DHCP and DNS operations for IPv4 and IPv6
2. Describe the operations and benefits of the Spanning Tree Protocol (STP)
3. Configure and troubleshoot STP operations
4. Describe the operations and benefits of link aggregation and Cisco VLAN Trunk Protocol (VTP)
5. Configure and troubleshoot basic operations of routers in a complex routed network for IPv4 and IPv6
6. Configure and troubleshoot advanced operations of routers and implement RIP, OSPF, and EIGRP routing protocols for IPv4 and IPv6
7. Manage Cisco IOS® Software licensing and configuration files

CTEC 285. Connecting Networks
3-4 Credits (3-4)
This course covers WAN technologies and network services required by converged applications in a complex network. Students learn about selection criteria of network devices, VLANs and WAN technologies to meet network requirements to resolve common issues with data link protocols. May be repeated up to 8 credits.
Prerequisite(s)/Corequisite(s): CTEC 280 or OECS 263. Restricted to Las Cruces campus only.

CTEC 290. Network Security
3-4 Credits (3-4)
Fundamentals of design and implementation of network security solutions that will reduce the risk of system vulnerability. Topics include: threats, attacks, vulnerabilities, tools, architecture, design, access management, risk management, and cryptography. May be repeated up to 8 credits.
Prerequisite(s)/Corequisite(s): (CTEC 120 or OECS 185), AND (CTEC 180 or OECS 261). Restricted to Las Cruces campus only.

CTEC 295. Cyber Technology Capstone
3-4 Credits (3-4)
Experiential hands-on learning applying skills and knowledge gained in computer and technology-related courses supporting contemporary workforce performance. May be repeated up to 8 credits.
Learning Outcomes
1. Evaluate technical components, systems and integrated systems.
2. Demonstrate individualized project-based skills.
3. Develop integrated system solutions.
4. Integrate cyber technology to support workplace performance.

CTEC 299. Independent Study
1-4 Credits (1-4)
Specific subject to be determined based upon student need. May be repeated up to 8 credits. Restricted to Community Colleges campuses only.