

COMPUTER AND INFORMATION TECHNOLOGY

Computer and Information Technology (CIT) is the discipline of using integrated computer-based systems to create, store, manipulate, secure, and share electronic data. At DACC, students can specialize in cybersecurity, data systems/analytics, network infrastructure, programming, and server administration.

For more information:

visit our webpage at <https://dacc.nmsu.edu/academics/departments/computer-information-technology/>

email us at cit@dacc.nmsu.edu, or

call us at 575-527-7663.

CIT is a rapidly evolving discipline that shapes the modern world. It encompasses various subdisciplines, including hardware, software, data, networking, and cybersecurity. Constant adaption and change drive advancements that impact all aspects of daily life, personal and professional. As technology becomes increasingly intertwined with daily life, cybersecurity has emerged as a vital concern. Cybersecurity professionals specialize in safeguarding data, integrated systems, and networks, from unauthorized access and attacks. They continuously develop strategies and tools to protect against cyber threats and ensure confidentiality, integrity, and availability of information.

In addition to cybersecurity, CIT professionals specialize in various subdisciplines, including system administration, networking, cloud computing, artificial intelligence, and Internet of Things (IoT). These specializations contribute to cutting-edge innovations that shape the future. As technology continues to advance, graduates from DACC remain at the forefront, shaping the digital landscape. Our students learn to work with applications and systems from leading technology companies such as Amazon, Apple, Dell, Google, Hewlett Packard, Microsoft, Oracle, Palo Alto, and Samsung.

CAREER OPPORTUNITIES

Graduates of DACC's Computer and Information Technology Department are the problem-solvers that employers quickly hire and promote. Many students start their careers immediately after earning their two-year degree while others continue to a four-year degree. Companies that employ our students include:

- AbsenceSoft
- Advanced Systems Development
- Amazon Web Services
- Apple, Inc.
- Army Research Laboratory (ARL)
- Belcan
- City of Las Cruces
- Deutsche Bank USA
- Dona Ana County
- Elephant Butte Irrigation District (EBID)
- First Savings Bank
- Indian Health Services
- Gadsden Independent School District

- Judicial Information Division of the New Mexico Courts
- Kirtland Air Force Base
- Las Cruces Public Schools
- Los Alamos National Laboratory (LANL)
- National Aeronautics and Space Administration (NASA)
- Native Joint Venture Corporation (NVJC)
- New Mexico Department of Agriculture
- New Mexico Department of Health
- New Mexico Department of Transportation
- New Mexico State University
- New Mexico Taxation and Revenue Department
- Peraton
- Performance Data Center
- Public Service Company of New Mexico
- Sandia National Laboratories
- Science Applications International Corporation (SAIC)
- Sierra Lobo
- Tata Consultancy Services
- United Services Automobile Association (USAA)
- United States Army Training and Doctrine Command
- United States Department of Defense
- United States Department of Energy
- United States Department of State
- Virgin Galactic
- VOLT Global
- Water Resources Research Institute
- White Sands Federal Credit Union

INDUSTRY CERTIFICATIONS

Students have opportunities to obtain industry certifications in the following fields of study:

- Coding and Programming
- Data Analytics and Management
- Device Configuration and Management
- Information Systems
- Internet of Things
- Network Administration
- Network Security
- Operating Systems
- Programming
- Security Analysis
- Server Administration

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Associate of Applied Sciences Degrees

Computer Information Systems - Associate of Applied Science
(<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/>)

computer-information-technology/computer-information-systems-associate-applied-science/)

Computer Technology (IT Specialist) - Associate of Applied Science (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/computer-information-technology-it-specialist-associate-applied-science/>)

Computer Technology (Networking) - Associate of Applied Science (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/computer-information-technology-networking-associate-applied-science/>)

C (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/computer-information-technology-programming-associate-applied-science/>) Computer Technology (Programming) - Associate of Applied Science (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/computer-information-technology-programming-associate-applied-science/>)

Cybersecurity - Associate of Applied Science (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/cybersecurity-associate-of-applied-science/>)

Certificates of Completion

Cisco Networking - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/cisco-networking-certificate/>)

Computer Information Systems - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/computer-information-systems-certificate-of-completion/>)

Computer Information Technology - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/computer-information-technology-certificate-completion/>)

Computer Technology - Data Analytics - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/computer-technology-data-analytics-certificate/>)

Cybersecurity - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/cybersecurity-certificate/>)

Oracle Programming - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/oracle-programming-certificate-completion/>)

Programming - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/programming-certificate-completion/>)

System Administration - Certificate of Completion (<https://catalogs.nmsu.edu/dona-ana/academic-career-programs/computer-information-technology/system-administration-certificate/>)

BCIS 110. Introduction to Computerized Information Systems 3 Credits

Computerized information systems, their economic, and social implications. Introduction to microcomputer hardware, personal productivity software, and communications.

CSEC 110. Principles of Cybersecurity 3 Credits (3)

Course covers contemporary trends in cybersecurity including understanding characteristics of security vulnerabilities as they relate to hardware, software, data, procedures, and user actions. Restricted to Community Colleges campuses

Learning Outcomes

1. Explain the importance of cybersecurity in the global economy.
2. Explain why cybersecurity is a growing profession.
3. Explain how hackers use unsuspecting individuals to propagate risk
4. Explain why cybersecurity is critical to industry and public safety
5. Explain approach to cybersecurity.
6. Explain the characteristics of cyber warfare.
7. Explain trends in the cyber threat landscape.
8. Explain the framework of enterprise security solutions.

CSEC 127. Internet of Things Integration 3 Credits (3)

Continuation of concepts taught in CTEC 127. Course expands on the importance of the Internet of Things (IoT) in society, control systems, communications, sensors, actuators, cloud computing, security, and databases. May be repeated up to 6 credits.

Prerequisite: CTEC 127.

Learning Outcomes

1. Demonstrate a detailed understanding of IoT.
2. Understand the societal impact of IoT.
3. Recognize challenges the IoT presents to security.
4. Develop an understanding of embedded programming language syntax and attributes.
5. Demonstrate assembly of electronic circuitry using a single-board computer.

CSEC 175. Introduction to Data Visualization 3 Credits

This course will demonstrate how to transform data into meaningful visual representations. Students will explore the role of visualization in organizational decision-making and learn to differentiate data types to create graphs, charts, and tables. The course also involves critiquing real-world data visualizations across business, science, and public policy incorporating ethical considerations, such as accuracy and bias.

Learning Outcomes

1. Describe the role of visualization in data-driven decision-making within an organization.
2. Differentiate data and data categories (numerical, categorical, temporal, etc.) by creating and interpreting graphs, charts, and tables including legends, symbols, and colors.
3. Import and export between common data sources such as spreadsheets, databases, or Application Programming Interfaces (APIs).
4. Implement data normalization by exploring techniques for cleaning and preparing data.
5. Perform basic and intermediate functions to calculate, analyze data, and forecast trends.

6. Create interactive and dynamic visualizations such as dashboards, timelines, and project management charts.
7. Discuss the ethical implications of data visualization (accuracy, bias, privacy, etc.).
8. Critique real-world examples of data visualizations in different domains such as business, science, or public policy.

CSEC 180. Introduction to Data Analytics

3 Credits (3)

A broad introduction to the field of data analytics that prepares students to explore key areas of the analytical process of how data is created, stored, cleaned, visualized, and analyzed. May be repeated up to 6 credits.

Learning Outcomes

1. Demonstrate basic principles of data analysis using analytical tools.
2. Apply data analytics to contemporary workplace performance.
3. Describe how data is stored and accessed through relational database(s).
4. Use programming language(s) to analyze data.
5. Integrate application software to analyze and visualize simple dataset.

CSEC 275. Introductory to Cryptography

3 Credits (3)

Introduction to the foundation of cryptography, principles behind cryptographic design, and cryptographic applications. Topics include encryption techniques, common cryptographic protocols and security functions.

Prerequisite(s)/Corequisite(s): MATH 1215 or above. Restricted to Las Cruces campus only.

Learning Outcomes

1. Describe the operations and benefits of cryptography
2. Able to understand necessary cryptography encoding
3. Able to use standard tools for penetration testing and compliance
4. Describe the basic need for cryptography and why it is essential for security.

CSEC 280. Introduction to Cyber Defense

3 Credits (3)

Introduction to the foundation of cryptography, principles behind cryptographic design, and cryptographic applications. Topics include encryption techniques, common cryptographic protocols and security functions.

Prerequisite(s)/Corequisite(s): MATH 1215. Restricted to Las Cruces campus only.

CSEC 283. Ethical Hacking and Penetration Testing

3 Credits (3)

Introduces students to the tools and software used in ethical hacking and penetration testing as well as introducing them to some of the vulnerabilities and exploits that exist within the cybersecurity field.

Prerequisite: E T 153 and E T 156.

Prerequisite/Corequisite: E T 283.

Learning Outcomes

1. Identify and describe common threats and vulnerabilities.
2. Describe/demonstrate how to secure a network.
3. Identify and demonstrate common tools used in ethical hacking/ penetration testing.
4. Identify and describe legal/ethical issues pertaining to ethical hacking.

CSEC 285. Introduction to Managing Information Security

3 Credits (3)

Managerial aspects of information security and assurance including access control models, information security governance, accountability metrics, legal responsibilities, and information security program assessment.

Prerequisite(s)/Corequisite(s): CTEC 290 or OECS 269. Restricted to Las Cruces campus only.

CSEC 286. Information Security Certification Preparation

4 Credits (4)

Covers the examination objectives and detailed preparation to prepare students to take the CompTia Security+ exam.

Prerequisite: E T 153, E T 156, and E T 283.

Learning Outcomes

1. Identify and describe common threats and vulnerabilities.
2. Identify and demonstrate common security devices/programs.
3. Describe/demonstrate how to secure a network.

CSEC 295. Cybersecurity Capstone

3-4 Credits (3-4)

Experiential hands-on learning applying skills and knowledge gained in technology and cybersecurity-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 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.

OECS 101. Computer Basics

1 Credit (1)

Hands-on instruction to introduce computer use and commonly used software. Graded S/U.

OECS 105. Introduction to Information Technology

3 Credits (3)

Examination of information systems and their impact on commerce, education, and personal activities. Utilization of productivity tools for

communication, data analysis, information management and decision-making.

Learning Outcomes

1. Describe the social impact of information literacy and systems in relation to commerce, education, and personal activities.
2. Explain how to use the information resources legally, safely, and responsibly in relation to ethical, security, and privacy issues.
3. Evaluate bias, accuracy and relevance of information and its sources.
4. Use productivity tools for communications, data analysis, information management and decision-making.
5. Describe and use current information systems and technologies.

OECS 110. Introduction to Power Point

1-3 Credits (1-3)

An introduction to Power Point software to develop business presentations. Includes concepts of basic presentation methods and graphic design principles. Students will create and deliver presentations using text, charts, digitized images, and sound. Restricted to Community Colleges campuses only.

OECS 125. Operating Systems

1-3 Credits

Installation, configuration and optimization of current operating systems. Restricted to: Community Colleges only.

OECS 128. Operating Systems Linux/Unix

3 Credits (3)

Installation, configuration, and use of Linux/Unix operating system software and utilities including hardware management, file management, use of command line, and scripting. Restricted to: Community Colleges only.

OECS 145. Mobile Application Development

1-3 Credits (1-3)

Introduction to elements of mobile application coding including concepts, design strategies, tools needed to create, test and deploy applications for mobile devices. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

OECS 155. Special Topics - Introductory Computer Technology

0.5-4 Credits (.5-4)

Topics to be announced in the Schedule of Classes. May be repeated up to 8 credits.

OECS 185. PC Maintenance and Repair I

1-3 Credits

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.

OECS 192. C++ Programming I

3 Credits (3)

Development of skills in programming using the C++ programming language. Restricted to: Community Colleges only.

OECS 195. Java Programming I

1-3 Credits

Developing of skills in programming using the Java programming language. Restricted to: Community Colleges only.

OECS 200. Accounting on Microcomputers

3 Credits (3)

Fundamental accounting principles using popular microcomputer software to include G/L, A/R, A/P, purchase order, billing, inventory, and forecasting modules.

Prerequisite: ACCT 2110 or OATS 121.

OECS 204. Linux Operating System

1-3 Credits

Install and configure the Linux operating system on X86 systems. Covers issues involved in maintaining operating system, networking, creating and managing users, and installing and updating software. General procedures for working with operating system includes maintaining disk space, preserving system security, and other related topics. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.

OECS 207. Windows

0.5-3 Credits

Covers local installation, configuration of core local services, managing users, and the general local management and maintenance of Windows workstations. May be repeated up to 6 credits.

Prerequisite(s)/Corequisite(s): OECS 185. Restricted to Community Colleges campuses only.

OECS 208. Internet Applications

1-3 Credits

Survey of the Internet to include e-mail, file transfer, current search techniques, the World Wide Web and basic Web page development. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

OECS 209. Computer Graphic Arts

1-3 Credits

Basic graphics composition using computer programs to include editing and manipulating graphic images, clip-art, and printing of pictures. May be repeated for a maximum of 6 credits under different subtitles listed in the Schedule of Classes.

Prerequisite: OECS 105, BCIS 1110, or OECS 101.

OECS 211. Word Processing Applications

1-3 Credits

Basic word processing to include composing, editing, formatting, and printing of documents. May be repeated under different subtitles listed in the Schedule of Classes for a maximum of 6 credits.

Prerequisites: BCIS 1110 or OECS 105.

OECS 215. Spreadsheet Applications

1-3 Credits

Use of spreadsheets to include graphics and business applications. May be repeated for a maximum of 6 credits.

Prerequisites: BCIS 1110 or OECS 105.

OECS 220. Database Application and Design

1-3 Credits

Creating, sorting, and searching of single and multifile databases to include report generation and programming database commands. May be repeated for a maximum of 6 credits under different subtitles listed in the Schedule of Classes. Restricted to: Community Colleges only.

Prerequisite(s): BCIS 1110 OR E T 120 OR E T 122 OR OECS 105.

OECS 221. Internship I

1-3 Credits

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge and theory learned in the classroom. Internships may be paid or unpaid. Students are supervised/evaluated by both the employer and the instructor. May be repeated up to 3 credits. Consent of Instructor

required. Restricted to: OECS majors. Graded: S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

Prerequisite(s): Consent of instructor.

OECS 222. Internship II

1-3 Credits

Continuation of OECS 221. Each credit requires specified number of hours of on-the-job work experience. May be repeated up to 3 credits. Consent of Instructor required. Restricted to: OECS majors. Graded: S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

Prerequisite(s): OECS 221 and consent of instructor.

OECS 223. Web Design for Business

3 Credits (3)

Design and create a website using HTML, CSS, web development tools and industry-recognized software while applying best practices in site management and business web presence.

Learning Outcomes

1. Students will identify and apply best practices for web design in a business setting.
2. Students will create a basic web page utilizing WC3 principles.
3. Students will explain the importance and impact of web presence in today's business environment.
4. Students will determine and utilize web page features and techniques for a specific business.
5. Students will create a web design management plan for business.
6. Students will discuss web page tools for performance and web traffic analytics.
7. Students will identify web design components for a motble society.

OECS 230. Data Communications and Networks I

1-3 Credits

Definition of data communication; survey of hardware applications and teleprocessor software; examination and design of networks. May be repeated for a maximum of 6 credits.

Prerequisite: OECS 185.

OECS 231. Data Communications and Networks II

1-3 Credits

Installation and application of popular microcomputer network software. May be repeated for a maximum of 6 credits.

Prerequisite: OECS 230.

OECS 234. Linux Server

3-4 Credits (3-4)

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 planning, implementation, management and support of Linux networking services. May be repeated up to 8 credits.

Prerequisite(s)/Corequisite(s): OECS 204. Restricted to: OECS majors. Restricted to Community Colleges campuses only.

OECS 235. Structured Query Language (SQL)

1-3 Credits

Installation, configuration, administration, and troubleshooting of SQL client/server database management system. May be repeated up to 3 credits.

Prerequisite(s)/Corequisite(s): OECS 220. Restricted to Community Colleges campuses only.

OECS 237. Windows Server

3-4 Credits (3-4)

This course addresses the implementation and support needs of IT professionals that are planning to deploy and support Microsoft Windows

Server Active Directory Domain Services in medium to large businesses. It provides in-depth, hands-on training for Information Technology (IT) professionals responsible for the planning, implementation, management, and support of Windows Active Directory services. May be repeated up to 4 credits.

Prerequisite(s)/Corequisite(s): OECS 207. Restricted to Community Colleges campuses only.

OECS 253. Applied Data Analysis and Management 3 Credits (3)

Applied use of advanced spreadsheet tools for data analysis and database tools for data and information management. Connect emerging topics in business to tools used in analyzing data and making raw data useful for business decision making.

Prerequisite: BCIS 1110.

Learning Outcomes

1. Manage, integrate, and analyze data with data tools.
2. Generate and summarize data.
3. Use tools for business projections, comparisons, trends, and informed decisions.
4. Create advanced queries and enhance table design.
5. Use form tools and create custom forms.
6. Use automation tools for efficiency.
7. Secure and maintain data.
8. Plan, research, create, and revise spreadsheets and databases for a specific business application.
9. Discuss emerging topics in business related to data analysis and management.

OECS 255. Special Topics

1-4 Credits

Topics to be announced in the Schedule of Classes.

OECS 261. Introduction to Networks

3-4 Credits (3-4)

Introduction to networking principles including the practical and conceptual skills for understanding basic networking, planning and designing networks, implementing IP addressing schemes, examining the OSI and TCP/IP layers, and performing basic configurations for routers and switches. Aligns to the first course of the Cisco Networking Academy CCNA curriculum. Restricted to Community Colleges campuses only.

OECS 262. Essentials of Routing and Switching

3-4 Credits (3-4)

Examination of the architecture, components, and operations of routers and switches in a small network. Student will learn how to configure, verify and troubleshoot: routers and switches, static routing, default routing, VLANs, and ACLs. Aligns to the second course of the Cisco Networking Academy CCNA curriculum. May be repeated up to 4 credits.

Prerequisite(s)/Corequisite(s): OECS 261. Restricted to Community Colleges campuses only.

OECS 263. Network Fundamentals

3-4 Credits (3-4)

Fundamentals of networking architecture, components, and operations including practical and conceptual skills using routers and switches. Student will learn how to configure, verify and troubleshoot static routing, default routing, VLANs, and ACLs. This course aligns to the third course of the Cisco Networking Academy CCNA curriculum. May be repeated up to 4 credits.

Prerequisite(s)/Corequisite(s): OECS 262. Restricted to Community Colleges campuses only.

OECS 264. Network Routing Protocols

3-4 Credits (3-4)

Fundamentals of routing protocols for troubleshooting advanced network operations. Covers common networking issues such as RIP, OSPF, and EIGRP for IPv4 and IPv6 networks. This course aligns to the fourth course of the Cisco Networking Academy CCNA curriculum. May be repeated up to 4 credits.

Prerequisite(s)/Corequisite(s): OECS 263. Restricted to Community Colleges campuses only.

OECS 269. Network Security

3-4 Credits (3-4)

Fundamentals of design and implementation of network security solutions that will reduce the risk of system vulnerability. May be repeated up to 8 credits. Restricted to Community Colleges campuses only.

Prerequisite(s): OECS 204 or OECS 207 or OECS 261 or consent of instructor.

OECS 275. PC Maintenance and Repair II

1-3 Credits

Continuation of OECS 185. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

Prerequisite(s): OECS 185.

OECS 280. Desktop Publishing I

3 Credits (3)

Design and production of publication materials to fill the needs of business communities, using a microcomputer. May be repeated for a maximum of 6 credits. Same as OATS 280.

Prerequisites: either BCIS 1110, OECS 105.

OECS 290. Computer Technology Capstone

1-3 Credits

Refines skills learned in the OECS program. Culminates in a review and practice of advanced software applications. May be repeated up to 3 credits. Restricted to: OECS & OECT majors. Restricted to Community Colleges campuses only.

Prerequisite(s): (OECS 125, OECS 128, OECS 207, OR OECS 203) AND (OECS 185 OR E T 283).

OECS 299. Independent Study

1-3 Credits

Specific subjects to be determined based on need. Restricted to: Community Colleges only.

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