COMPUTER AND INFORMATION TECHNOLOGY

The **Certificate in Microcomputer Applications** is designed for students interested in microcomputer operations and systems. Upon completion, students are prepared to take the Microsoft Office Specialist certification exams in Word and Excel.

The **Associate of Applied Science Degree in Computer and Information Technology** equips students for employment which involves the analysis and design of computerized information and management decision systems. Graduates of the program are prepared to take the CompTIA A+ certification exam which demonstrates competency in the maintenance of PCs, mobile devices, operating systems and printers. The program is broken down into three concentrations. Students must take 15 credit hours in one of the following concentrations to obtain their degree in that field: IT Specialist Concentration, Networking Concentration or Programming Concentration.

Graduation Requirements

Certificate in Microcomputer Applications: A cumulative GPA of 2.0 or higher. A minimum of 9 credits earned toward the certificate must be completed at SENMC.

AAS in Computer and Information Technology: ENGL 1110G Composition I with a C- or higher; placement into college-level math and reading courses or completion of developmental courses with a C- or higher; cumulative GPA of 2.0 or higher. A minimum of 15 of the 60 credits for the associate's degree must be completed at SENMC.

- Computer and Information Technology IT Specialist - Associate of Applied Science (https://senmc-public.courseleaf.com/academic-programs/associate-degree-certificate-programs/computer-information-technology/computer-information-technology-it-specialist-aas/)
- Computer and Information Technology Networking - Associate of Applied Science (https://senmc-public.courseleaf.com/academic-programs/associate-degree-certificate-programs/computer-information-technology/computer-information-technology-networking-aas/)
- Computer and Information Technology Programming - Associate of Applied Science (https://senmc-public.courseleaf.com/academic-programs/associate-degree-certificate-programs/computer-information-technology/computer-information-technology-programming-aas/)
- Microcomputer Applications - Certificate (https://senmc-public.courseleaf.com/academic-programs/associate-degree-certificate-programs/computer-information-technology/microcomputer-applications-certificate/)

OECS 101 Computer Basics 1 Credit (1)
Hands-on instruction to introduce computer use and commonly used software. Graded S/U.
View Course Outcomes

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.
Repeatable: up to 3 credits
View Course Outcomes

OECS 110 Introduction to Power Point 1-3 Credits
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.
View Course Outcomes

OECS 125 Operating Systems 1-3 Credits
Installation, configuration and optimization of current operating systems.
View Course Outcomes

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.
Learning Outcomes
1. Introduction to Linux
2. Introduction to Installing Linux
3. Fedora and RedHat Enterprise Linux fundamentals
4. The SHELL
5. The LINUX filesystem
6. Networking and the Internet
7. The Bourne Again Shell (bash)
8. System Administration Core Concepts
9. Files, Directories, and Filesystems 1
10. Finding, Downloading, and installing the software 1
11. Printing 1
12. Building a Linux Kernel 1
13. Administration tasks 1
14. Configuring and monitoring a LAN 1
15. Programming the Bourne Again Shell (bash) 1
16. The Python Programming LanguagePoints/Grading conversion:

View Course Outcomes

OECS 145 Mobile Application Development 1-3 Credits
Introduction to elements of mobile application coding including concepts, design strategies, tools needed to create, test and deploy applications for mobile devices.
Repeatable: up to 6 credits
View Course Outcomes

OECS 155 Special Topics Introductory Computer Technology 0.5-3 Credits
Topics to be announced in the Schedule of Classes.
Repeatable: up to 8 credits
View Course Outcomes

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.
Repeatable: up to 3 credits
View Course Outcomes

OECS 192 C++ Programming I 3 Credits (3)
Development of skills in programming using the C++ programming language.
View Course Outcomes

OECS 195 Java Programming I 1-3 Credits
Developing of skills in programming using the Java programming language.
View Course Outcomes

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(s): ACCT 2110 or OATS 121
Learning Outcomes
1. Effective communication skills in reading, writing, listening, and speaking.
2. Basic critical thinking skills including problem identification, evidence acquisition, evidence evaluation, and problem solving and analytical decision making.
3. An understanding of personal and social responsibility
4. An ability to apply the fundamental concepts of quantitative reasoning in mathematics and science.

View Course Outcomes

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.
Repeatable: up to 3 credits
View Course Outcomes

OECS 207 Windows 3 Credits (3)
Covers local installation, configuration of core local services, managing users, and the general local management and maintenance of Windows workstations.
Prerequisite(s)/Corequisite(s): OECS 185
Repeatable: up to 6 credits
View Course Outcomes

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.
Repeatable: up to 6 credits
View Course Outcomes

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.
Prerequisite(s): OECS 105, BCIS 1110, or OECS 10
Repeatable: for a maximum of 6 credits under different subtitles listed in the Schedule of Classes
View Course Outcomes

OECS 211 Word Processing Applications 1-3 Credits
Basic word processing to include composing, editing, formatting, and printing of documents. Prerequisites: BCIS 1110 or OECS 105
Repeatable: under different subtitles listed in the Schedule of Classes for a maximum of 6 credits
View Course Outcomes

OECS 215 Spreadsheet Applications 1-3 Credits
Use of spreadsheets to include graphics and business applications. Prerequisites: BCIS 1110 or OECS 105
Repeatable: for a maximum of 6 credits
Learning Outcomes
1. Create and format worksheets/workbooks using features of Microsoft Excel including chart data, styles, and themes.
2. Utilize formulas and functions to create worksheets suitable for professional and personal purposes.
3. Utilize the advanced function of Excel to create templates, work with multiple worksheet, advanced sorting and filtering and data analysis.

View Course Outcomes

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.
Prerequisite(s): BCIS 1110 OR E T 120 OR OECS 105
Repeatable: for a maximum of 6 credits under different subtitles listed in the Schedule of Classes
View Course Outcomes

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. Consent of Instructor required. OECS majors. Graded: S/U Grading (S/U, Audit).
Prerequisite(s): Consent of instructor
Repeatable: up to 3 credits
View Course Outcomes

OECS 222 Internship II 1-3 Credits
Continuation of OECS 221. Each credit requires specified number of hours of on-the-job work experience. Consent of Instructor required. OECS majors. Graded: S/U Grading (S/U, Audit).
Prerequisite(s): OECS 221 and consent of instructor
Repeatable: up to 3 credits
View Course Outcomes

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.
View Course Outcomes

OECS 227 Computer Applications for Technicians 3 Credits (3)
Computer applications for service technicians in various disciplines. Hardware and software applications explored. Includes operating systems, high level programming, and networking hardware and software.
View Course Outcomes

OECS 230 Data Communications and Network I 1-3 Credits
Definition of data communication; survey of hardware applications and teleprocessor software; examination and design of networks.
Prerequisite(s): OECS 185
Repeatable: for a maximum of 6 credits
View Course Outcomes

OECS 231 Data Communications and Network II 1-3 Credits
Installation and application of popular microcomputer network software.
Prerequisite(s): OECS 230
Repeatable: for a maximum of 6 credits
View Course Outcomes

OECS 234 Linux Server 3-4 Credits
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.
Prerequisite(s)/Corequisite(s): OECS 204
Repeatable: up to 8 credits
View Course Outcomes

OECS 235 Structured Query Language (SQL) 1-3 Credits
Installation, configuration, administration, and troubleshooting of SQL client/server database management system.
Prerequisite(s)/Corequisite(s): OECS 220
Repeatable: up to 3 credits
View Course Outcomes

OECS 237 Windows Server 3-4 Credits
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.
Prerequisite(s)/Corequisite(s): OECS 207
Repeatable: up to 4 credits
View Course Outcomes

OECS 245 Game Programming I 3 Credits (3)
Development of programming skills for games and animation using current programming languages and tools.
Prerequisite(s): consent of instructor
Repeatable: for a maximum of 6 credits
View Course Outcomes

OECS 246 Game Programming 3 Credits (3)
Continuation of OECS 245.
Prerequisite(s): OECS 245
Repeatable: for a maximum of 6 credits
View Course Outcomes

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(s): BCIS 1110
View Course Outcomes

OECS 255 Special Topics 1-4 Credits
Topics to be announced in the Schedule of Classes.
View Course Outcomes

OECS 261 Introduction to Networks 3-4 Credits
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.
View Course Outcomes

OECS 262 Essentials of Routing and Switching 3-4 Credits
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.
Prerequisite(s)/Corequisite(s): OECS 261
Repeatable: up to 4 credits
View Course Outcomes

OECS 263 Network Fundamentals 3-4 Credits
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.
Prerequisite(s)/Corequisite(s): OECS 262
Repeatable: up to 4 credits
View Course Outcomes

OECS 264 Network Routing Protocols 3-4 Credits
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.
Prerequisite(s)/Corequisite(s): OECS 263
Repeatable: up to 4 credits
View Course Outcomes

OECS 269 Network Security 3 Credits (3)
Fundamentals of design and implementation of network security solutions that will reduce the risk of system vulnerability.
Prerequisite(s): OECS 204 or OECS 207 or OECS 261 or consent of instructor
Repeatable: up to 8 credits
View Course Outcomes

OECS 275 PC Maintenance and Repair II 1-3 Credits
Continuation of OECS 185.
Prerequisite(s): OECS 185
Repeatable: up to 6 credits
View Course Outcomes

OECS 280 Desktop Publishing I 3 Credits (3)
Design and production of publication materials to fill the needs of business communities, using a microcomputer. Prerequisites: either BCIS 1110, OECS 105.
Repeatable: for a maximum of 6 credits
Crosslist: OATS 280
View Course Outcomes

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. Restricted to: OECS & OECT majors.
Prerequisite(s): (OECS 125, OECS 128, OECS 207, OR OECS 203) AND (OECS 185 OR E T 283)
Repeatable: up to 3 credits
View Course Outcomes

OECS 299 Independent Study 1-3 Credits
Specific subjects to be determined based on need.
View Course Outcomes