

Computer Science – Computer Systems Support (AAS)

Associate in Applied Science

Minimum of 61 credit hours

Do you have a natural curiosity about how computers and their programs work? Do you like to put your knowledge to good use helping others? Are you a good communicator, or would you like to become one? Then, a career as a computer systems support specialist would be a good choice for you! At Oklahoma City Community College, you can earn an associate degree in applied science or a certificate of mastery in computer science with a computer systems support option. Either program option will get you out of school quickly and into the job market. Just talk with a faculty advisor about which would be the best choice for your lifestyle and career goals. OCCC provides a strong foundation in computer science and is a National Center of Academic Excellence in Cyber Defense.

COURSE SEQUENCE

Course ID	Course Name	Credits	Type	Min GD
Term 1				
SCL 1001	Success in College and Life Students will learn best practices for academic, career, and personal success. Students will discover their individual strengths, interests, and values to create a personalized plan; select and utilize resources that are applicable to their growth and success; and engage as active and responsible members of the academic community. This course should be taken during a student's first semester of college work at Oklahoma City Community College and is a required course in degree plans to satisfy the Life Skills requirement. Prerequisites: ENGL 0106 or adequate reading/writing assessment scores	1	Life Skills	
CS 1103	Introduction to Computers and Applications This hands-on course affords students a basic understanding of computers and their application. Upon completion of this course, the student will be able to demonstrate the ability to use a computer operating system, an office suite, productivity tools, as well as the Internet at an introductory level. Advanced Standing is available. Prerequisites: MATH 0103 or adequate math placement; ENGL 0203, adequate placement score, or by meeting determined placement measures	3	Gen Ed	C
CS 1153	Introduction to Computing Technologies Students will learn fundamental concepts of computing technologies. Topics will include computer hardware, operating systems, application software, networking, information security and privacy, information systems, program development, database management systems, social aspect of computing technologies, and cloud computing. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0103 or adequate math placement.	3	Major	C
Term 2				
CS 1353	Computer Operating Systems Students will learn the following important areas through a combination of lectures and hands-on projects: installing, maintaining and optimizing Windows operating systems, troubleshooting Windows and applications, connecting to and setting up a network, Windows resources on a network, computer security strategies, mobile devices, and client-side virtualization. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement; prerequisite or co-requisite CS 1103	3	Major	C
CS 1413	Computer Hardware	3	Major	C

Students will learn the following through class lectures and hands-on projects: identification, configuration, maintenance, troubleshooting, and repair of PC hardware including mainboards, BIOS, processors, memory, storage devices, peripherals, and printers. Other IT-related issues such as networks, safety and environmental concerns, customer relations, and professionalism are also presented. **Prerequisites:** ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement; prerequisite or co-requisite CS 1103

Term 3

ENGL 1113	English Composition I	3	Gen Ed
	The student will write well-developed compositions which demonstrate the principles of unity, coherence, and organization and which contain specific details and vivid language. The students will locate library material and incorporate researched materials into compositions. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures		
HIST 1483	U.S. History to 1877	OR	Gen Ed
	After analyzing events in American history from 1400 to 1877 in such areas as revolution, geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change, precedents, and conflict in the American past. A general education requirement. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures		
HIST 1493	U.S. History 1877 to Present	3	Gen Ed
	After analyzing events in American history from 1877 to the present in such areas as geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change, precedents, and conflict in the American past. A general education requirement. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures		

Term 4

ENGL 1213	English Composition II	OR	Gen Ed
	In this advanced writing course, students will create essays that explore and evaluate a variety of issues and perspectives suggested by fiction, poetry, drama, essays, and other types of cultural texts. Students will refine and augment the writing techniques they learned in ENGL 1113 or ENGL 1103 to develop well-reasoned, well-structured arguments in a clear, fluid, and engaging prose style. Prerequisites: ENGL 1103 or ENGL 1113 taken within the last year, with strong encouragement for immediate continuation.		
ENGL 1233	Technical Writing for the Workplace	OR	Gen Ed
	This course will expose students to technical communication and will allow students to practice professional methods of writing in the workplace. In addition to constructing technical documents appropriate for use in professional and job-related environments, students will learn about rhetorical methods for presenting technical information in ethical and formal prose designed for clear and effective communication with employers and colleagues. This course will equip the student with written and oral communication skills necessary for sharing information and discussing content in professional settings; developing an awareness of technical genres; utilizing technological platforms for constructing documents; using visuals and graphics professionally; writing professional correspondence; constructing reports; designing project proposals; and composing instructions. Prerequisites: ENGL 1113 or ENGL 1103; MATH 0203 College Prep Math II or adequate Math Placement Test Score		
COM 1123	Interpersonal Communications	OR	Gen Ed
	The student will be able to identify why certain things happen as they do when two or more individuals come together to communicate for a specific purpose. The student must attest to his or her ability to understand the principles of interpersonal communication with emphasis on dyads, small groups, analysis of communication models and nonverbal communication, applying understanding to the major types of interpersonal communication problems in the work environment and in daily human relations. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures		
COM 2213	Intro to Public Speaking	3	Gen Ed
	Given the principles of effective listening and speaking, the student will assimilate those skills into his or her physical and psychological worlds. After being exposed to public, business and professional speaking, the student will apply the principles of invention, organization, style, and delivery through practical exercises and will use the principles of rhetorical criticism in discussing speeches delivered in class. Prerequisites: ENGL 0106 or adequate placement score		
POLSC 1113	American Federal Government	3	Gen Ed

	A study of the principles, structure, processes and functions of the United States federal government. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures			
CS 2713	Principles of Information Security	3	Major	C
	Students will complete a comprehensive overview of network security, with an introduction to a variety of security problems faced by the computing industry. This course is mapped to the CompTIA Security+ Certification Exam. The course covers topics in general security concepts, communication security, infrastructure security, cryptography basics, and operational/organizational security. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement; CS 1353			
Term 5				
CS 2303	Networking Technologies	3	Major	C
	Students will learn how to install, configure, and troubleshoot basic networking hardware, protocols, and services and to describe the features and functions of networking components. A foundational knowledge in the important areas of media and topologies, protocols and standards, network implementation, and network support will be developed using a combination of lectures and interactive assignments. Prerequisites: MATH 0203 or adequate math placement; CS 1353			
CS 2503	Server Administration	3	Major	C
	The students will use a network operating system to create and manage a local area network. The topics to be covered include creating and administering user and group accounts, managing network resources and administering permissions for files and folders, setting up and administering the printing environment, using the auditing functions, backing up and restoring files and folders. Preparatory course for certification through Microsoft. Prerequisites: CS 1353			
Term 6				
CS 2153	Cloud Computing	3	Major	C
	Students will demonstrate their understanding of planning, configuring, implementing, and maintaining cloud computing infrastructure, as well as the services it supports such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). Prerequisites: CS 1353			
CS 2763	Network Defense	3	Major	C
	Students will learn topics related to network vulnerabilities and defense. Topics include network and computer attacks, ethical hacking, penetrating testing, desktop and server vulnerabilities, securing embedded systems, web server security, wireless security, cryptography, and network protection systems. Prerequisites: CS 1353			
Term 7				
CS 1333	Database Management Applications	3	Major	C
	The student will use a selected database management program to create and edit database files. The student will also search, organize, and build reports, forms, and templates with the database files. Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement.			
CS 2283	Introduction to Virtualization	3	Major	C
	This course covers fundamental concepts and practical knowledge of virtualization technology. Students will learn to install and configure virtualization software, manage virtual networking and storage, deploy, manage, and migrate virtual machines, manage user access to the virtual machine infrastructure, monitor resource usage, increase scalability, apply patches, and manage higher availability and data protection. Students will gain hands-on experience through using virtualization software platforms. Prerequisites: CS 1353 or by evaluation § Criteria for evaluation is in division office.			
Term 8				
MATH 1503	Contemporary Mathematics	3	Gen Ed	
	A study of the mathematics needed for critical evaluation of quantitative information and arguments (including logic, critical appraisal of graphs and tables); use of simple mathematical models, and an introduction to elementary statistics. Prerequisites: MATH 0313 or adequate math placement. Pre or Co-requisite ENGL 0203			
CS 1543	Introduction to Scripting	3	Major	C

Students will learn to use a scripting language to create scripts to automate the execution of tasks. They will learn to design, code, and test applications using the scripts. Topics include basic data types, control structures, regular expressions, input/output handling, and textual analysis. **Prerequisites:** ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0313 or adequate math placement

CS 2183	Linux	3	Major	C
<p>This course is an introduction to the Linux operating system for users. It is designed for those with a DOS/Windows operating system background with little or no knowledge of Linux. Topics include the development of Linux; basic Linux operating system concepts; a comparison of Linux to MS Windows; frequently used Linux programs and utilities, shells, editors, and tools; X window GUI and applications; Linux and the internet; setting up Apache web server software; basic HTML and CGI programming for Linux; use of virtual machine software to create virtual machines of guest operating system on top of host operating system. Prerequisites: MATH 0203 or adequate math placement, CS 1103 or by evaluation. § Criteria for evaluation is in division office.</p>				

Term 9

CS 2403	Computer Support Services	3	Major	C
<p>Students will demonstrate their understanding of planning, implementing, and maintaining a support center for both internal and external users of computer hardware and software. The main topics will include: the Help Desk, design of hardware and software specifications, performing a needs assessment, design of evaluation instruments, creation of both technical and non-technical documentation, working with customers in a support role, and ethical standards for the computing professional. Prerequisites: ENGL 1113; MATH 0203 or adequate math placement and 9 credit hours of Computer Science courses.</p>				
CS	Computer Science Elective Computer Science elective	3	Support	C

COURSE GROUPING

Major Courses: (39 credit hours): Computer Science: CS 1153 (C), CS 1333 (C), CS 1353 (C), CS 1413 (C), CS 1543 (C), CS 2153 (C), CS 2183 (C), CS 2283 (C), CS 2303 (C), CS 2403 (C), CS 2503 (C), CS 2713(C), CS 2763 (C)

General Education Courses: (18 credit hours)

Communications: ENGL 1213 or ENGL 1233 or COM 1123 or COM 2213

Computer Science: CS 1103 (C) English: ENGL 1113 Mathematics: MATH 1503

History: HIST 1483 or HIST 1493

Political Science: POLSC 1113

Life Skills Courses: (1 credit hour) Life Skills: SCL 1001

Support Courses: (3 credit hours) Computer Science electives (C)

PROGRAM NOTES

Notes: This Technical and Occupational program is designed to prepare students to enter the job force following completion. See Technical and Occupational Programs in the general information section of the catalog. Must have a grade of "C" or higher in all Computer Science courses.

COURSE DESCRIPTIONS

COMMUNICATIONS

COM 1123 - Interpersonal Communications

The student will be able to identify why certain things happen as they do when two or more individuals come together to communicate for a specific purpose. The student must attest to his or her ability to understand the principles of interpersonal communication with emphasis on dyads, small groups, analysis of communication models and nonverbal communication, applying understanding to the major types of interpersonal communication problems in the work environment and in daily human relations.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures

Credits: 3

COM 2213 - Intro to Public Speaking

Given the principles of effective listening and speaking, the student will assimilate those skills into his or her physical and psychological worlds. After being exposed to public, business and professional speaking, the student will apply the principles of invention, organization, style, and delivery through practical exercises and will use the principles of rhetorical criticism in discussing speeches delivered in class.

Prerequisites: ENGL 0106 or adequate placement score

Credits: 3

COMPUTER SCIENCE

CS 1103 - Introduction to Computers and Applications

This hands-on course affords students a basic understanding of computers and their application. Upon completion of this course, the student will be able to demonstrate the ability to use a computer operating system, an office suite, productivity tools, as well as the Internet at an introductory level. Advanced Standing is available.

Prerequisites: MATH 0103 or adequate math placement; ENGL 0203, adequate placement score, or by meeting determined placement measures

Credits: 3

CS 1153 - Introduction to Computing Technologies

Students will learn fundamental concepts of computing technologies. Topics will include computer hardware, operating systems, application software, networking, information security and privacy, information systems, program development, database management systems, social aspect of computing technologies, and cloud computing.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0103 or adequate math placement.

Credits: 3

CS 1333 - Database Management Applications

The student will use a selected database management program to create and edit database files. The student will also search, organize, and build reports, forms, and templates with the database files.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement.

Credits: 3

CS 1353 - Computer Operating Systems

Students will learn the following important areas through a combination of lectures and hands-on projects: installing, maintaining and optimizing Windows operating systems, troubleshooting Windows and applications, connecting to and setting up a network, Windows resources on a network, computer security strategies, mobile devices, and client-side virtualization.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement; prerequisite or co-requisite CS 1103

Credits: 3

CS 1413 - Computer Hardware

Students will learn the following through class lectures and hands-on projects: identification, configuration, maintenance, troubleshooting, and repair of PC hardware including mainboards, BIOS, processors, memory, storage devices, peripherals, and printers. Other IT-related issues such as networks, safety and environmental concerns, customer relations, and professionalism are also presented.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement; prerequisite or co-requisite CS 1103

Credits: 3

CS 1543 - Introduction to Scripting

Students will learn to use a scripting language to create scripts to automate the execution of tasks. They will learn to design, code, and test applications using the scripts. Topics include basic data types, control structures, regular expressions, input/output handling, and textual analysis.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0313 or adequate math placement

Credits: 3

CS 2153 - Cloud Computing

Students will demonstrate their understanding of planning, configuring, implementing, and maintaining cloud computing infrastructure, as well as the services it supports such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

Prerequisites: CS 1353

Credits: 3

CS 2183 - Linux

This course is an introduction to the Linux operating system for users. It is designed for those with a DOS/Windows operating system background with little or no knowledge of Linux. Topics include the development of Linux; basic Linux operating system concepts; a comparison of Linux to MS Windows; frequently used Linux programs and utilities, shells, editors, and tools; X window GUI and applications; Linux and the internet; setting up Apache web server software; basic HTML and CGI programming for Linux; use of virtual machine software to create virtual machines of guest operating system on top of host operating system.

Prerequisites: MATH 0203 or adequate math placement, CS 1103 or by evaluation. § Criteria for evaluation is in division office.

Credits: 3

CS 2283 - Introduction to Virtualization

This course covers fundamental concepts and practical knowledge of virtualization technology. Students will learn to install and configure virtualization software, manage virtual networking and storage, deploy, manage, and migrate virtual machines, manage user access to the virtual machine infrastructure, monitor resource usage, increase scalability, apply patches, and manage higher availability and data protection. Students will gain hands-on experience through using virtualization software platforms.

Prerequisites: CS 1353 or by evaluation § Criteria for evaluation is in division office.

Credits: 3

CS 2303 - Networking Technologies

Students will learn how to install, configure, and troubleshoot basic networking hardware, protocols, and services and to describe the features and functions of networking components. A foundational knowledge in the important areas of media and topologies, protocols and standards, network implementation, and network support will be developed using a combination of lectures and interactive assignments.

Prerequisites: MATH 0203 or adequate math placement; CS 1353

Credits: 3

CS 2403 - Computer Support Services

Students will demonstrate their understanding of planning, implementing, and maintaining a support center for both internal and external users of computer hardware and software. The main topics will include: the Help Desk, design of hardware and software specifications, performing a needs assessment, design of evaluation instruments, creation of both technical and non-technical documentation, working with customers in a support role, and ethical standards for the computing professional.

Prerequisites: ENGL 1113; MATH 0203 or adequate math placement and 9 credit hours of Computer Science courses.

Credits: 3

CS 2503 - Server Administration

The students will use a network operating system to create and manage a local area network. The topics to be covered include creating and administering user and group accounts, managing network resources and administering permissions for files and folders, setting up and administering the printing environment, using the auditing functions, backing up and restoring files and folders. Preparatory course for certification through Microsoft.

Prerequisites: CS 1353

Credits: 3

CS 2713 - Principles of Information Security

Students will complete a comprehensive overview of network security, with an introduction to a variety of security problems faced by the computing industry. This course is mapped to the CompTIA Security+ Certification Exam. The course covers topics in general security concepts, communication security, infrastructure security, cryptography basics, and

operational/organizational security.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0203 or adequate math placement; CS 1353

Credits: 3

CS 2763 - Network Defense

Students will learn topics related to network vulnerabilities and defense. Topics include network and computer attacks, ethical hacking, penetrating testing, desktop and server vulnerabilities, securing embedded systems, web server security, wireless security, cryptography, and network protection systems.

Prerequisites: CS 1353

Credits: 3

ELECTIVES

CS - Computer Science Elective

Computer Science elective

Credits: 3

ENGLISH

ENGL 1113 - English Composition I

The student will write well-developed compositions which demonstrate the principles of unity, coherence, and organization and which contain specific details and vivid language. The students will locate library material and incorporate researched materials into compositions.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures

Credits: 3

ENGL 1213 - English Composition II

In this advanced writing course, students will create essays that explore and evaluate a variety of issues and perspectives suggested by fiction, poetry, drama, essays, and other types of cultural texts. Students will refine and augment the writing techniques they learned in ENGL 1113 or ENGL 1103 to develop well-reasoned, well-structured arguments in a clear, fluid, and engaging prose style.

Prerequisites: ENGL 1103 or ENGL 1113 taken within the last year, with strong encouragement for immediate continuation.

Credits: 3

ENGL 1233 - Technical Writing for the Workplace

This course will expose students to technical communication and will allow students to practice professional methods of writing in the workplace. In addition to constructing technical documents appropriate for use in professional and job-related environments, students will learn about rhetorical methods for presenting technical information in ethical and formal prose designed for clear and effective communication with employers and colleagues. This course will equip the student with written and oral communication skills necessary for sharing information and discussing content in professional settings; developing an awareness of technical genres; utilizing technological platforms for constructing documents; using visuals and graphics professionally; writing professional correspondence; constructing reports; designing project proposals; and composing instructions.

Prerequisites: ENGL 1113 or ENGL 1103; MATH 0203 College Prep Math II or adequate Math Placement Test Score

Credits: 3

HISTORY

HIST 1483 - U.S. History to 1877

After analyzing events in American history from 1400 to 1877 in such areas as revolution, geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change,

precedents, and conflict in the American past. A general education requirement.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures

Credits: 3

HIST 1493 - U.S. History 1877 to Present

After analyzing events in American history from 1877 to the present in such areas as geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change, precedents, and conflict in the American past. A general education requirement.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures

Credits: 3

MATHEMATICS

MATH 1503 - Contemporary Mathematics

A study of the mathematics needed for critical evaluation of quantitative information and arguments (including logic, critical appraisal of graphs and tables); use of simple mathematical models, and an introduction to elementary statistics.

Prerequisites: MATH 0313 or adequate math placement. Pre or Co-requisite ENGL 0203

Credits: 3

POLITICAL SCIENCE

POLSC 1113 - American Federal Government

A study of the principles, structure, processes and functions of the United States federal government.

Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures

Credits: 3

SUCCESS IN COLLEGE AND LIFE

SCL 1001 - Success in College and Life

Students will learn best practices for academic, career, and personal success. Students will discover their individual strengths, interests, and values to create a personalized plan; select and utilize resources that are applicable to their growth and success; and engage as active and responsible members of the academic community. This course should be taken during a student's first semester of college work at Oklahoma City Community College and is a required course in degree plans to satisfy the Life Skills requirement.

Prerequisites: ENGL 0106 or adequate reading/writing assessment scores

Credits: 1