

Computer Science

COMPUTER SCIENCE AND INFORMATION TECHNOLOGY DEPARTMENT

Associate in Applied Science (A.A.S.) Degree

The Computer & Information Systems option leads to the Associate in Applied Science Degree in Computer Science. Students learn object oriented programming in C++ or Java and event driven programming in Visual Basic, client/server architecture, analysis & design of database systems, networking technologies, Windows and LINUX System Administration. Through a cooperative education program, students can gain work experience and earn college credits during their studies at Middlesex County College.

What will students learn if they study Computer Science?

Students learn on PC's running the DOS, Windows, and LINUX operating systems. They learn several programming languages and administration of both LINUX and Windows systems. Students develop problem-solving and communication skills using modern information processing techniques.

Are there any requirements students must satisfy before taking courses in the major?

Algebra II is a prerequisite for all Computer Science majors. Algebra II competency may be verified with a passing score on the College's placement test or by completing the appropriate course. Students must also have a grade of "C" or better in algebra II and geometry.

Why major in Computer & Information Systems - Network Administration & Support Option?

Network Administration and Support Option of the CIS program leads to the Associate in Applied Science Degree in Computer Science. Students learn network administration of Windows and LINUX operating systems. Problem solving skills are taught through the use of the object oriented programming language C++ or Java and the event driven programming Visual Basic. This program prepares students to take the certification tests for a PC Hardware operating systems technology, networking and security and Microsoft Windows MCP (Microsoft Certified Professional). Through a cooperative education program, students can gain work experience and earn college credits during their studies at Middlesex County College.

Can students transfer to a four-year college or university?

Articulation agreements with public and private institutions offer students who earn the A.A.S. degree the opportunity to transfer all of their coursework to the four-year institution. Students in specialized programs, or who earn an A.A.S. degree should discuss the transfer process with an advisor.

How long will it take to complete this degree?

Once students complete developmental coursework (if needed), the degree can be completed in two years of full-time study. They can shorten the amount of time by taking courses in the summer and winter sessions. They can complete the certificate in one year.

Questions?

Contact Name: Marilyn Laskowski-Sachnoff, Dean, Division of Professional Studies

Contact Email: MLaskowski-Sachnoff@middlesexcc.edu

COMPUTER AND INFORMATION SYSTEMS

Associate in Applied Science (A.A.S.) - General Degree Option - CSI .AAS

Below are required courses and recommended course groupings and sequences for program completion.

Courses may have prerequisite and corequisite requirements. Check course descriptions for details.

Courses	Credits	Requisites/Comments
<i>Semester I</i>		
CSC 105 Computer Applications and Systems	3	
OR CSC 106 Intermediate PC Applications with Programming	3	CSC 105 or CSC 107 or one year of high school computer applications or a programming course and MAT 014 or appropriate score on the College's placement test.
CSC 161 Introduction to Computer Science Using Java	4	MAT 014 or appropriate score on the College's placement test.
ENG 121 English Composition I	3	A passing score on the College's placement test or a grade of "C" or better in ENG 010.
MAT 116 College Algebra	3	Prerequisite(s): MAT 014
OR MAT 129 Precalculus	4	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "B" or better in MAT 014, or departmental approval.
OR MAT 129A Precalculus (Part A)	2	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "C" or better in MAT 014 or MAT 014A and MAT 014B, or departmental approval.
AND MAT 129B Precalculus (Part B)	2	MAT 129A or equivalent courses
____ General Education Social Science Elective (GE SS)	3	
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<i>Semester II</i>		
CSC 110 Microcomputer Operating Systems and Architecture	3	CSC 105 or CSC 106
CSC 162 Object Oriented Programming Using Java	4	Prerequisite(s): CSC 161 and MAT 116 or MAT 129 or MAT 129A
CSC 208 Visual BASIC Programming	4	CSC 106 or CSC 161 or CSC 133
ENG 122 English Composition II	3	A grade of "C" or better in ENG 121
MAT 123 Statistics I	3	MAT 014 or appropriate score on the College's placement test.
OR MAT 131 Analytic Geometry and Calculus I	4	MAT 129 or MAT 129A/MAT 129B or appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, or departmental approval.
OR MAT 131A Analytic Geometry and Calculus I (Part A)	2	MAT 129 or MAT 129A/MAT 129B or appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, or departmental approval.
AND MAT 131B Analytic Geometry and Calculus I (Part B)	2	MAT 131A
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<i>Semester III</i>		
CSC 200 Networking Technologies	3	CSC 110
CSC 236 Data Structures In Java	4	CSC 162 and MAT 116 or MAT 129B or MAT 129
CSC 245 UNIX* and Shell Programming	4	CSC 133 or CSC 161
____ Physical/Health Education Elective	1-3	

Semester IV

CSC 239 Database Concepts	3	CSC 133 or CSC 161
CSC 241 Web Programming	4	CSC 134 or CSC 162
CSC 246 UNIX/ Web Server Administration	3	CSC 245
____ General Education Humanities Elective (GE HUM)	3	
_____ <i>Choose Technical Elective listed below:</i>	3	
CSC 116 Introduction to Information Systems Security	3	CSC 105 or CSC 106
CSC 126 Help Desk Customer Service	3	CSC 105 or CSC 106 and ENG 121
CSC 127 Help Desk Operation	3	CSC 126
CSC 205 Computer Science Work Experience I	3	Completion of all courses in first year of CIS or
CSC 206 Computer Science Work Experience II	3	Network Administration Option.
CSC 248 PC Service and Support	3	CSC 110 and CSC 200
CSC 251 Windows Workstation Administration	3	CSC 200
CSC 252 Windows Server Administration	3	CSC 251
CSC 261 Information Technology Management	3	CSC 133 or CSC 161 and CSC 200 and ENG 121
<i>Other Electives:</i>		
CSC 211 Programming in JAVA	4	CSC 134 or CSC 162
MAT 132 Analytic Geometry and Calculus II	4	MAT 131 or equivalent
Science Elective	4	

Total Credits: 61-66

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NETWORK ADMINISTRATION AND SUPPORT

Associate in Applied Science (A.A.S.) - Networking Degree Option - CSNN.AAS

<u>Courses</u>	<u>Credits</u>	<u>Requisites/Comments</u>
<i>Semester I</i>		
CSC 105 Computer Applications and Systems	3	
OR CSC 106 Intermediate PC Applications with Programming	3	CSC 105 or CSC 107 or one year of high school computer applications or a programming course and MAT 014 or appropriate score on the College's placement test.
CSC 133 Introduction to Computer Science using C++	4	MAT 014 or appropriate score on College's placement test.
ENG 121 English Composition I	3	A passing score on the College's placement test or a grade of "C" or better in ENG 010.
MAT 116 College Algebra	3	MAT 014
OR MAT 129 Precalculus	4	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "B" or better in MAT 014 or departmental approval.
OR MAT 129A Precalculus (Part A)	2	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "C" or better in MAT 014 or MAT 014A and MAT 014B or departmental approval.
AND MAT 129B Precalculus (Part B)	2	MAT 129A or equivalent courses
___ ___ General Education Social Science Elective (GE SS)	3	
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<i>Semester II</i>		
CSC 110 Microcomputer Operating Systems and Architecture	3	CSC 105 or CSC 106
CSC 208 Visual BASIC Programming	4	CSC 106 or CSC 133 or CSC 161
CSC 116 Introduction to Information Systems Security	3	CSC 105 or CSC 106
ENG 122 English Composition II	3	A grade of "C" or better in ENG 121
MAT 123 Statistics I	3	MAT 014 or appropriate score on the College's placement test.
OR MAT 131 Analytic Geometry and Calculus I	4	MAT 129 or MAT 129A/MAT 129B or appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, or departmental approval.
OR MAT 131A Analytic Geometry and Calculus I (Part A)	2	MAT 129 or MAT 129A/MAT 129B or appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, or departmental approval.
AND MAT 131B Analytic Geometry and Calculus I (Part B)	2	MAT 131A
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<i>Semester III</i>		
CSC 200 Networking Technologies	3	CSC 110
CSC 245 UNIX and Shell Programming	4	CSC 133 or CSC 161
CSC 251 Windows Workstation Administration	3	CSC 200
PED/HED Physical/Health Education Elective	1-3	
___ ___ <i>Choose Technical Elective listed below:</i>	3	All students should consult a computer science advisor.
Technical Electives:		
CSC 126 Help Desk Customer Service	3	CSC 105 or CSC 106 and ENG 121
CSC 127 Help Desk Operation	3	CSC 126
CSC 205/CSC 206 Computer Science Work Experience I/ II	3	Completion of all courses in first year of CIS or CSC 206 Computer Science Work Experience II Network Administration Option.

CSC 258 Computer Forensics	3	CSC 116 and CSC 245 or written permission of departmental chairperson.
CSC 261 Information Technology Management	3	CSC 133 or CSC 161 and CSC 200 and ENG 121
<i>Other Electives:</i>		
CSC 134 Object Oriented Programming using C++	4	Prerequisite(s): CSC 133 and MAT 116 or MAT 129 or MAT 129A Corequisite(s): MAT 126 or MAT 128 or MAT 131 or MAT 131A
CSC 211 Programming in JAVA	4	CSC 134 or CSC 162
CSC 230 Multimedia Production and Authoring Tools	4	CSC 134
CSC 235 Data Structures	4	CSC 134 and MAT 116 or MAT 129 or MAT 129B
CSC 241 Web Programming	4	CSC 134 or CSC 162
MAT 132 Analytic Geometry and Calculus II	4	MAT 131, MAT 131A/MAT 131B or equivalent
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<i>Semester IV</i>		
CSC 239 Database Concepts	3	CSC 133 or CSC 161
CSC 246 UNIX and Web Server Administration	3	CSC 245
CSC 248 PC Service and Support	3	CSC 200 and CSC 110
CSC 252 Windows Server Administration	3	CSC 251
___ ___ General Education Humanities Elective (GE HUM)	3	

Total Credits: 61-66

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COMPUTER PROGRAMMING CERTIFICATE - CSC.CER

Courses	Credits	Requisites/Comments
CSC 106 Intermediate PC Applications with Programming	3	CSC 105 or CSC 107 or one year of high school computer applications or a programming course and MAT 014 or appropriate score on the College's placement test.
CSC 110 Microcomputer Operating Systems and Architecture	3	CSC 105 or CSC 106
CSC 133 Introduction to Computer Science using C++	4	MAT 014 or appropriate score on College's placement test.
CSC 134 Object Oriented Programming using C++	4	CSC 133 and MAT 116 or MAT 129 or MAT 129A
CSC 235 Data Structures	4	CSC 134 and MAT 116 or MAT 129 or MAT 129B
____ <i>Recommended Computer Science Electives:</i>	3-4	All students should consult a computer science advisor.
CSC 116 Introduction to Information Systems Security	3	CSC 105 or CSC 106
CSC 211 Programming in JAVA	4	CSC 134 or CSC 162
CSC 241 Web Programming	4	CSC 134 or CSC 162
CSC 261 Information Technology Management	3	CSC 133 or CSC 161 and CSC 200 and ENG 121
<i>The following courses cannot be taken as electives: CSC 105, CSC 107, CSC 108, CSC 109, CSC 115, CSC 117, CSC 165</i>		
ENG 121 English Composition I	3	A passing score on the College's placement test or a grade of "C" or better in ENG 010.
ENG 122 English Composition II	3	A grade of "C" or better in ENG 121
MAT 116 College Algebra	3	MAT 014 or MAT 014A and MAT 014B
OR		
MAT 129 Precalculus	4	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "B" or better in MAT 014 or departmental approval.
OR		
MAT 129A Precalculus (Part A)	2	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "C" or better in MAT 014 or MAT 014A and MAT 014B or departmental approval.
AND		
MAT 129B Precalculus (Part B)	2	MAT 129A or equivalent courses
OR		
MAT 123 Statistics	3	MAT 014, MAT 014A/MAT 014B or satisfactory score on the College's placement test.
OR		
MAT 131 Analytic Geometry and Calculus I	4	MAT 129 or MAT 129A/MAT 129B or appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, or departmental approval.
OR		
MAT 131A Analytic Geometry and Calculus I (Part A)	2	MAT 129 or MAT 129A/MAT 129B or appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, or departmental approval.
AND		
MAT 131B Analytic Geometry and Calculus I (Part B)	2	MAT 131A

Total Credits: 33-36

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NETWORK ADMINISTRATION CERTIFICATE - CSNN.CER

Courses	Credits	Requisites/Comments
CSC 106 Intermediate PC Applications with Programming	3	CSC 105 or CSC 107 or MCT 101 or one year of high school computer applications or a programming course and MAT 014 or appropriate score on the College's placement test.
CSC 110 Microcomputer Operating Systems and Architecture	3	CSC 105 or CSC 106
CSC 116 Introduction to Information System Security	3	CSC 105 or CSC 106
CSC 126 Help Desk Customer Service	3	ENG 121, CSC 105 or CSC 106
CSC 200 Networking Technologies	3	CSC 110
CSC 251 Windows Workstation Administration	3	CSC 200
CSC 252 Windows Server Administration	3	CSC 251
____ Technical Electives	3-4	
CSC 125 Web Markup Languages	3	CSC 133 or CSC 161 and MAT 014
CSC 127 Help Desk Operation	3	CSC 126
CSC 133 Introduction to Computer Science Using C++	4	Prerequisite(s): MAT 014 or appropriate score on the College's placement test. Corequisite(s): MAT 116 or MAT 129 or MAT 129A
CSC 161 Introduction to Computer Science Using JAVA	4	MAT 014 or appropriate score on College's placement test. Corequisite(s): MAT 129 or MAT 129A or higher
CSC 208 Visual BASIC Programming	4	CSC 106 or CSC 133 or CSC 161
<i>The following courses cannot be taken as electives: CSC 105, CSC 107, CSC 108, CSC 109, CSC 165,</i>		
ENG 121 English Composition I	3	A passing score on the College's placement test or a grade of "C" or better in ENG 010.
ENG 122 English Composition II	3	A grade of "C" or better in ENG 121
MAT 116 College Algebra	3	MAT 014 or MAT 014A and MAT 014B
OR		
MAT 129 Precalculus	4	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "B" or better in MAT 014 or departmental approval.
OR		
MAT 129A Precalculus (Part A)	2	Appropriate score on the College's placement test and/or satisfactory score on the diagnostic examination, "C" or better in MAT 014 or MAT 014A and MAT 014B, or departmental approval.
AND		
MAT 129B Precalculus (Part B)	2	MAT 129A or equivalent courses

Total Credits: 33-35

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**COMPUTER HELP DESK ADMINISTRATION
CERTIFICATE OF ACHIEVEMENT - CSH.COA**

<u>Courses</u>	<u>Credits</u>	<u>Requisites/Comments</u>
CSC 108 Introduction to Internet Applications	2	Prerequisites recommended: Prior completion of one of the following courses: CSC 105 or CSC 106 or CSC 107 or equivalent microcomputer experience.
CSC 110 Microcomputer Operating Systems and Architecture	3	CSC 105 or CSC 106
CSC 116 Introduction to Information Systems Security	3	CSC 105 or CSC 106
CSC 200 Networking Technologies	3	CSC 110
CSC 126 Help Desk Customer Service	3	ENG 121, CSC 105 or CSC 106
CSC 127 Help Desk Operation	3	CSC 126
SPE 121 Fundamentals of Public Speaking	3	

Total Credits: 20

Certificate Prerequisites

- **CSC 105 - Computer Applications and Systems or CSC 106 - Intermediate PC Applications with Programming**
- ENG 121 - English Composition I

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