

Welcome to Schoolcraft.

CREENTIAL YEAR 2021–2022

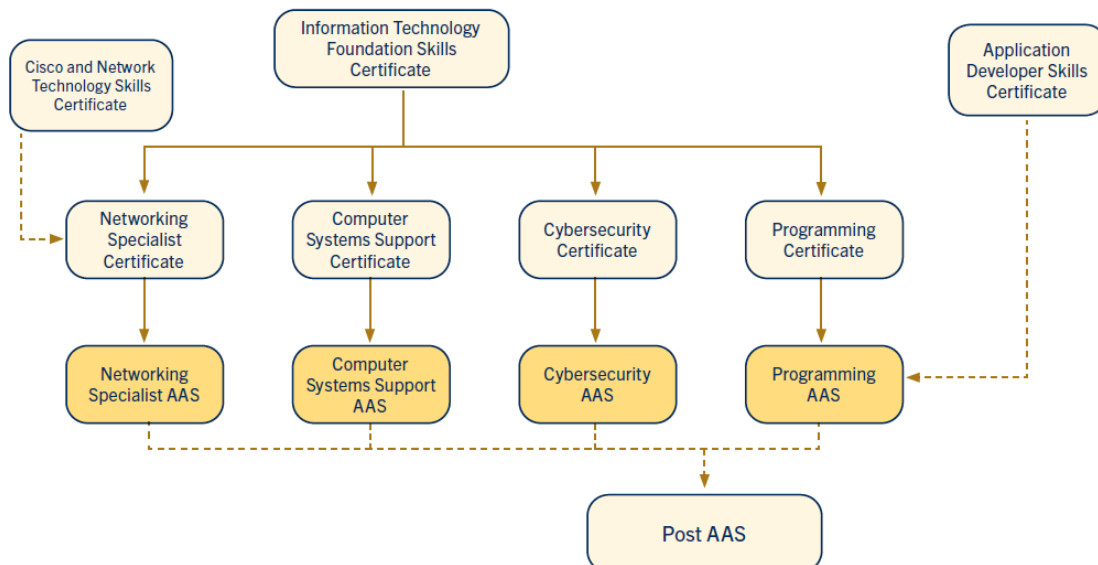
Computer Information Systems

Credentials

Foundation	
Information Technology Foundation Skills Certificate	16-18 cr.
Networking	
Cisco and Network Technology Skills Certificate	18 cr.
Networking Specialist Certificate	30 cr.
Networking Specialist AAS Degree	60-64 cr.
Computer Systems Support	
Computer Systems Support Certificate	33-34 cr.
Computer Systems Support AAS Degree	62-69 cr.
Cybersecurity	
Cybersecurity Certificate	35 cr.
Cybersecurity AAS Degree	63-71 cr.
Programming	
Application Developer Skills Certificate	16 cr.
Programming Certificate	30-31 cr.
Programming AAS Degree	60–62 cr.
Post-Associate	
Post-Associate Certificate	16 cr.

Major Description

If you are interested in learning more about computer basics or technology, or preparing for a career in an emerging technology field, Schoolcraft’s Computer Information Systems programs have what you need. We offer four associate of applied science degrees and eight certificates that will help you enhance your skills and prepare for a career in computer systems support, networking, cybersecurity, or programming. Explore the diagram of our educational options below to chart your path:



Foundation

• **Information Technology Foundation Skills Certificate:** This certificate program is designed for students who are new to computers and information technology looking to become more knowledgeable before choosing a specific path to pursue in the field. Students at any level of computer familiarity will gain fundamental computer knowledge and skills before having the opportunity to choose courses providing a path forward into several certificate and degree programs.

Networking

• **Cisco and Network Technology Skills Certificate:** This certificate program is designed to provide students with a focused understanding of network fundamentals and relevant industry skills, while working with network equipment and the latest networking technologies in preparation to achieve the Cisco Certified Network Associate (CCNA) and other industry certifications.

• **Networking Specialist Certificate:** This certificate provides students with an understanding of network fundamentals and technologies necessary to support networks and network technologies in the demanding information technology field. Students will gain proficiency working with network equipment such as routers and switches, servers and modern operating systems, and explore advanced topics such as cloud technology and cybersecurity. For students looking to jump-start their current IT career, several industry certifications are covered and include: Network+, Security+, Cloud+, Linux+, CCNA.

• **Networking Specialist AAS Degree:** Networks form the basis of nearly all of the technologies used in the field of information technology. This program prepares students for an entry-level position in network support where one is expected to not only master networking technologies, but understand how they integrate with and support business operations. Students will gain proficiency working with network equipment such as routers and switches, servers and modern operating systems, and explore advanced topics such as cloud technology and cybersecurity. This program also covers several industry certifications important to starting a networking career including: Network+, Security+, Cloud+, Linux+, CCNA.

Computer Systems Support

• **Computer Systems Support Certificate:** This certificate program provides students with the fundamental knowledge and skills required for an entry-level role in the rapidly evolving field of information technology. Students will learn basics of computer hardware, software and user support, as well as explore advanced areas of networking and cybersecurity vital to today's organizations. This program also covers several industry certifications important to starting a career in information technology including: A+, Networking+, (and others depending on chosen electives).

• **Computer Systems Support AAS Degree:** In a world dominated by cloud networking and data breaches, supporting computer systems and users is more challenging than ever before. This degree program prepares students for entry-level positions in information technology support where a wide range of technical skills and knowledge are not only requested by employers, but required. Students will learn how to support the latest computer hardware and software technologies, support users in a business environment and explore the wider field of IT including networking and cybersecurity. This program also covers several industry certifications important to starting a career in information technology including: A+, Networking+, (and others such as Security+ or Cisco certification depending on chosen electives).

Cybersecurity

- **Cybersecurity Certificate:** This certificate provides students with a firm foundation of technologies and knowledge required to enter the exciting cybersecurity field. Students will gain proficiency with network equipment, operating systems, security software, as well as skills necessary for configuring and analyzing secure systems. This program also covers several industry certifications including Security+, Linux+, Cisco certification, and Microsoft Windows Server.

- **Cybersecurity AAS Degree:** Cybersecurity is becoming increasingly important as more organizations seek to protect their networks, software, and information from potential threats. This program is designed for students who plan to enter this rapidly advancing field and provides a firm foundation of technical skills and knowledge required to thrive in modern business environments. Students will gain proficiency with network equipment, operating systems, security software, as well as skills necessary for configuring and analyzing secure systems. Several industry certifications are covered, including Security+, Linux+, Cisco certification, and Microsoft Windows Server.

Programming

- **Application Developer Skills Certificate:** This certificate program is designed to introduce students to the top computer programming languages used in software development and web applications. Students will also learn how to use the Microsoft.NET framework, which is the common environment for building, deploying and running web services and applications in Windows. In addition, the new Visual Studio.NET will be used, a common development environment for the new .NET framework.

- **Programming Certificate:** This certificate program introduces students to the operating system, concepts of programming logic, programming language and software applications. During or after the first year of this certificate program, students may choose to earn one of the computer information system associate degrees, providing all degree requirements are fulfilled.

- **Programming AAS Degree:** This degree offers students a schedule of core computer courses and electives to prepare them for a position as an entry- level programmer. Students will learn how a computer programmer analyzes problems and writes step-by-step instructions to enable a computer system to process data efficiently.

Post -Associate

- **Post-Associate Certificate:** Designed for working professionals who have earned an associate degree in applied science and have experience and/ or training in the computer field, it provides insight into the latest computer technology and will enhance their ability to meet the needs of the fast-changing computer information systems environment.

Students who possess current external certification in any of the following should contact OccupationalPrograms@schoolcraft.edu to determine if they are eligible to earn Schoolcraft College credit: CompTIA Network+, CompTIA Security+, CompTIA A+, CompTIA Cloud+, Cisco Certified Entry Network Technician (CCENT), Cisco Certified Network Associate (CCNA), Cisco Certified Network Associate (CCNA) Cyber Ops certification, or Cisco Certified CyberOps Associate.

Computer Information Systems: Information Technology Foundation Skills Certificate

Schoolcraft program code # CRT.00328

This certificate program is designed for students who are new to computers and information technology looking to become more knowledgeable before choosing a specific path to pursue in the field. Students at any level of computer familiarity will gain fundamental computer knowledge and skills before having the opportunity to choose courses providing a path forward into several certificate and degree programs.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 115	Introduction to Computer Based Systems	3
CIS 120	Software Applications	3
Elective(s)	Select from list	3-4
	Total Credits: 9-10	

First Year - Winter Semester

Course #	Course Title	Credits
CNT 115	Cybersecurity Fundamentals	3
Elective(s)	Select from list	4-5
	Total Credits: 7-8	

Electives

Course #	Course Title	Credits
CIS 122	Microsoft Outlook	2
CIS 129	Introduction to Programming Logic	3
CIS 171	Introduction to Networking	3
CIS 172	Network Security Fundamentals	3
CIS 178	Technical Microsoft Windows	3
CIS 211	Introduction to C++	2
CIS 255	Introduction to Linux	3
CNT 133	Computer Software and Troubleshooting	3
CNT 210	CCNA Networking 1	4

PROGRAM TOTAL 16-18 CREDITS

Computer Information Systems: Cisco and Network Technology Skills Certificate

Schoolcraft program code # CRT.00329

This fast-paced certificate is geared towards working professionals who have experience and/or training in the computer field, or for someone with exposure to technology, that is serious about obtaining Cisco and relevant networking industry certifications. This curriculum provides students with a focused understanding of network fundamentals, proficiency working with network equipment and the latest networking technologies. Specific topics and skills covered are based on the latest Cisco Certified Networking Associate exam objectives and topics relevant to industry certification in the networking field. Completion of this Skills Certificate positions the student to continue on to the Networking Specialist Certificate with many of the requirements already completed.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CNT 210*	CCNA Networking 1	4
CNT 220*	CCNA Networking 2	4
	Total Credits: 8	

First Year - Winter Semester

Course #	Course Title	Credits
CNT 230*	CCNA Networking 3	4
Elective	Select Two	6
CIS 172	Network Security Fundamentals	
CIS 255	Introduction to Linux	
CNT 176	Cloud Network Technologies	
CNT 244	Cybersecurity Operations	
	Total Credits: 10	

PROGRAM TOTAL 18 CREDITS

*Completion of CNT 210, CNT 220 and CNT 230 will prepare the student to sit for the Cisco Certified Network Associate (CCNA) exam.

Computer Information Systems: Networking Specialist Certificate

Schoolcraft program code # 1YC.00231

This program prepares students for the challenging field of networking where fundamental knowledge of networks underpins the ability to master rapidly advancing advancements that span nearly all technologies in use today. A thorough practical foundation is provided by the rigorous Cisco Academy, with additional courses in the specialized topics of server administration, cybersecurity, wireless, and cloud networking.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CNT 115	Cybersecurity Fundamentals	3
CNT 210*	CCNA Networking 1	4
CNT 220*	CCNA Networking 2	4
CNT 250	Server Administration 1	3
Elective	Select one:	3
CIS 178	Technical Microsoft Windows	
CIS 255	Introduction to Linux	
	Total Credits: 17	

First Year - Winter Semester

Course #	Course Title	Credits
CNT 230*	CCNA Networking 3	4
CNT 173	Wireless Local Area Networks	3
CNT 176	Cloud Network Technologies	3
CIS 172	Network Security Fundamentals	3
	Total Credits: 13	

PROGRAM TOTAL 30 CREDITS

*Completion of CNT 210, CNT 220 and CNT 230 will prepare the student to sit for the Cisco Certified Network Associate (CCNA) exam.

Computer Information Systems: Networking Specialist AAS Degree

Schoolcraft program code # AAS.00007

This program builds on the Networking Specialist certificate program to further prepare students for a career in the challenging field of networking. In addition to the targeted curriculum of the certificate program, students will gain additional knowledge and skills necessary to design, integrate, and manage networking projects.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
English	Select one:	3
ENG 100	Communication Skills	
ENG 101	English Composition 1	
CNT 115	Cybersecurity Fundamentals	3
CNT 210*	CCNA Networking 1	4
CNT 220*	CCNA Networking 2	4
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
English	Select one:	3
ENG 102	English Composition 2	
ENG 106	Business English	
ENG 116	Technical Writing	
Mathematics	Select one:	4
MATH 102	Technical Mathematics	
MATH 113	Intermediate Algebra for College Students	
MATH 126	College Algebra	
CNT 230*	CCNA Networking 3	4
Humanities	General Education Humanities course (Recommended courses below)	1-3
COMA 103	Fundamentals of Speech	
HUM 106	Introduction to Art and Music	

	Total Credits: 12 - 14	
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Computer Information Systems: Networking Specialist AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
Social Science	General Education Social Science course (Recommended courses below)	3-4
POLS 105	Survey of American Government	
PSYCH 153	Human Relations	
PSYCH 201	Introductory Psychology	
Science	General Education Science course	3-4
	Total Credits: 6-8	

Second Year - Fall Semester

Course #	Course Title	Credits
CIS 172	Network Security Fundamentals	3
CNT 173	Wireless Local Area Networks	3
CNT 250	Server Administration 1	3
Elective	Select one:	3
CIS 178	Technical Microsoft Windows	
CIS 255	Introduction to Linux	
	Total Credits: 12	

Second Year - Winter Semester

Course #	Course Title	Credits
CIS 250	Systems Development and Design	4
CIS 251	IT Project Management	3
CNT 176	Cloud Network Technologies	3
CNT 293	Network Design	3
Elective	Select one not previously taken	3
	Total Credits: 16	

Computer Information Systems: Networking Specialist AAS Degree (continued)

Electives

Course #	Course Title	Credits
CIS 178	Technical Microsoft Windows	3
CIS 225	Database Management Systems	3
CIS 255	Introduction to Linux	3
CIS 273	TCP/IP and Network Architectures	3
CIS 274	Advanced Linux	3
CNT 253	Server Administration 2	3

PROGRAM TOTAL 60-64 CREDITS

*Completion of CNT 210, CNT 220 and CNT 230 will prepare the student to sit for the Cisco Certified Network Associate (CCNA) exam.

Computer Information Systems: Computer Systems Support Certificate

Schoolcraft program code # 1YC.00230

This program prepares students for their role as a modern systems support technician in businesses where they are expected to be responsible for much more than just fixing computers. In addition to a firm basis in computer hardware and software skills, students will gain technical proficiency in operating systems, networking, and cybersecurity, while also learning how to communicate with and support users in a business environment.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 120	Software Applications	3
CNT 115	Cybersecurity Fundamentals	3
CNT 179	Physical Networking	3
CNT 130	Computer Hardware and Troubleshooting	3
CNT 133	Computer Software and Troubleshooting	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
CIS 215	Advanced Software Applications	3
Elective	Select one:	3
CIS 178	Technical Microsoft Windows	
CIS 255	Introduction to Linux	
CNT 136	Computer User Support	3
CIS 171	Introduction to Networking	3
Elective	Select from list	3-4
	Total Credits: 15-16	

Computer Information Systems: Computer Systems Support Certificate (continued)

First Year - Spring Session

Course #	Course Title	Credits
CIS 180	Spreadsheet Applications - Current Software	3
	Total Credits: 3	

Electives

Course #	Course Title	Credits
CIS 172	Network Security Fundamentals	3
CNT 173	Wireless Local Area Networks	3
CNT 210	CCNA Networking 1	4
CNT 220	CCNA Networking 2	4

PROGRAM TOTAL 33-34 CREDITS

Computer Information Systems: Computer Systems Support AAS Degree

Schoolcraft program code # AAS.00014

This program builds on the Computer Systems Support certificate program to further prepare students for a career as a modern systems support technician. Students will enhance their technical skills, while also learning how to manage projects and develop systems solutions to business challenges.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
English	Select one:	3
ENG 100	Communication Skills	
ENG 101	English Composition 1	
CIS 120	Software Applications	3
CNT 115	Cybersecurity Fundamentals	3
CNT 130	Computer Hardware and Troubleshooting	3
CNT 133	Computer Software and Troubleshooting	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
English	Select one:	3
ENG 102	English Composition 2	
ENG 106	Business English	
ENG 116	Technical Writing	
Mathematics	Select one:	4
MATH 102	Technical Mathematics	
MATH 113	Intermediate Algebra for College Students	
MATH 126	College Algebra	
CIS 171	Introduction to Networking	3
CIS 215	Advanced Software Applications	3
CNT 136	Computer User Support	3
	Total Credits: 16	

Computer Information Systems: Computer Systems Support AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
Social Science	General Education Social Science course (Recommended courses below)	3-4
POLS 105	Survey of American Government	
PSYCH 153	Human Relations	
PSYCH 201	Introductory Psychology	
Science	General Education Science course	3-4
	Total Credits: 6-8	

Second Year - Fall Semester

Course #	Course Title	Credits
CIS 180	Spreadsheet Applications - Current Software	3
Humanities	General Education Humanities course (Recommended courses below)	1-3
COMA 103	Fundamentals of Speech	
HUM 106	Introduction to Art and Music	
CIS 178	Technical Microsoft Windows	3
CNT 179	Physical Networking	3
Elective	Select one:	3-4
CIS 172	Network Security Fundamentals	
CNT 173	Wireless Local Area Networks	
CNT 210	CCNA Networking 1	
CNT 220	CCNA Networking 2	
	Total Credits: 13-16	

Second Year - Winter Semester

Course #	Course Title	Credits
CIS 250	Systems Development and Design	4
CIS 251	IT Project Management	3
CIS 255	Introduction to Linux	3
Elective	Select from list (if not previously taken)	2-4
	Total Credits: 12-14	

Computer Information Systems: Computer Systems Support AAS Degree (continued)

Electives - Select one not previously taken

Course #	Course Title	Credits
CIS 122	Microsoft Outlook	2
CIS 172	Network Security Fundamentals	3
CIS 185	Introduction to HTML	3
CIS 225	Database Management Systems	3
CNT 173	Wireless Local Area Networks	3
CNT 210	CCNA Networking 1	4
CNT 220	CCNA Networking 2	4

PROGRAM TOTAL 62-69 CREDITS

Computer Information Systems: Cybersecurity Certificate

Schoolcraft program code # 1YC.00232

This program prepares students for the exciting and rapidly advancing Cybersecurity field. A thorough foundation is provided in networking and operating systems, while also covering advanced security topics including design, vulnerability and penetration testing, and defense technologies. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CNT 115	Cybersecurity Fundamentals	3
CNT 210*	CCNA Networking 1	4
CNT 220*	CCNA Networking 2	4
	Total Credits: 11	

First Year - Winter Semester

Course #	Course Title	Credits
CIS 172	Network Security Fundamentals	3
CNT 250	Server Administration 1	3
CIS 255	Introduction to Linux	3
CIS 129	Introduction to Programming Logic	3
	Total Credits: 12	

Second Year - Fall Semester

Course #	Course Title	Credits
CNT 262	Perimeter Defense	3
CNT 180	Ethical Hacking and System Defense	3
	Total Credits: 6	

Computer Information Systems: Cybersecurity Certificate (continued)

Second Year - Winter Semester

Course #	Course Title	Credits
CNT 260	Information Assurance and Security	3
Select One		3
CNT 264	Security Testing Methods	
CNT 244	Cybersecurity Operations	
	Total Credits: 6	

PROGRAM TOTAL 35 CREDITS

**CNT 210 is a prerequisite to CNT 220. Students are encouraged to take the 7-week section of CNT 210 followed by the 7-week section of CNT 220 in the same semester. Students who do not follow this path could face additional semesters to degree completion.*

Computer Information Systems: Cybersecurity AAS Degree

Schoolcraft program code # AAS.00066

This program builds on the Cybersecurity certificate program to further develop the skills necessary for students to be successful in environments where business and technical requirements constantly evolve. In addition to the targeted cybersecurity curriculum of the certificate program, students will gain additional business and data analysis skills while also having the opportunity to further explore networking, systems management, or programming.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
English	Select one:	3
ENG 100	Communication Skills	
ENG 101	English Composition 1	
CNT 115	Cybersecurity Fundamentals	3
CNT 210*	CCNA Networking 1	4
CNT 220*	CCNA Networking 2	4
	Total Credits: 14	

First Year – Winter Semester

Course #	Course Title	Credits
English	Select one:	3
ENG 102	English Composition 2	
ENG 106	Business English	
ENG 116	Technical Writing	
CIS 129	Introduction to Programming Logic	3
CIS 172	Network Security Fundamentals	3
CNT 250	Server Administration 1	3
CIS 255	Introduction to Linux	3
	Total Credits: 15	

Computer Information Systems: Cybersecurity AAS Degree (continued)

First Year – Spring Session

Course #	Course Title	Credits
Social Science	Select General Education Social Science course. Recommended courses below.	3-4
POLS 105	Survey of American Government	
PSYCH 153	Human Relations	
PSYCH 201	Introductory Psychology	
CIS 180	Spreadsheet Applications – Current Software	3
	Total Credits: 6-7	

Second Year – Fall Semester

Course #	Course Title	Credits
CNT 262	Perimeter Defense	3
CNT 180	Ethical Hacking and System Defense	3
Mathematics	Select one:	4
MATH 102	Technical Mathematics	
MATH 113	Intermediate Algebra for College Students	
MATH 126	College Algebra	
Science	Select General Education Science course	3-4
Elective	Select one	2-3
	Total credits: 15-17	

Second Year – Winter Semester

Course #	Course Title	Credits
CIS 250	Systems Development and Design	4
CNT 260	Information Assurance and Security	3
Select One		3
CNT 264	Security Testing Methods	
CNT 244	Cybersecurity Operations	
Elective	Select one	2-5
Humanities	Select General Education Humanities course. Recommended courses below.	1-3
COMA 103	Fundamentals of Speech	
HUM 106	Introduction to Art and Music	
	Total Credits: 13-18	

Computer Information Systems: Cybersecurity AAS Degree (continued)

Electives

Course #	Course Title	Credits
CIS 178	Technical Microsoft Windows	3
CIS 225	Database Management Systems	3
CNT 253	Server Administration 2	3
CIS 273	TCP/IP and Network Architectures	3
CIS 274	Advanced Linux	3
CIS 251	IT Project Management	3
CNT 176	Cloud Network Technologies	3
CIS 211	Introduction to C++	2
CIS 221	Advanced C++	2
CIS 238	JavaScript	3
CIS 290	Object-Oriented Programming With Java	3
ELECT 180	LabVIEW Programming CORE 1 and 2	5

PROGRAM TOTAL 63-71 CREDITS

**CNT 210 is a prerequisite to CNT 220. Students are encouraged to take the 7-week section of CNT 210 followed by the 7-week section of CNT 220 in the same semester. Students who do not follow this path could face additional semesters to degree completion.*

Computer Information Systems: Application Developer Skills Certificate

Schoolcraft program code # CRT.00366

The Microsoft .NET framework is a common environment for building, deploying, and running web services and web applications in the Windows environment. This certificate is designed to introduce the student to the top four programming languages used in software development today. The student will use the new Visual Studio.NET, which is a common development environment for the new .NET Framework. The .NET Framework provides a feature-rich application execution environment, simplified development, and easy integration between a number of different development languages.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 129	Introduction to Programming Logic	3
	Total Credits: 3	

First Year - Winter Semester

Course #	Course Title	Credits
CIS/CNT Elective	Select one:	3
CNT 115	Cybersecurity Fundamentals	
CIS 171	Introduction to Networking	
CIS 211	Introduction to C++	2
	Total Credits: 5	

Second Year - Fall Semester

Course #	Course Title	Credits
CIS 221	Advanced C++	2
CIS 223	Introduction to C#	3
CIS 290	Object-Oriented Programming with Java	3
	Total Credits: 8	

PROGRAM TOTAL 16 CREDITS

Computer Information Systems: Programming Certificate

Schoolcraft program code # 1YC.00004

The computer information systems certificate program introduces students to the operating system and concepts surrounding programming logic. In addition, students obtain a basic knowledge of software applications and programming languages.

Students may select one of the computer information systems associate degree programs at any time during or after the first year. However, all degree requirements must be fulfilled.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
CIS 115	Introduction to Computer Based Systems	3
CIS 120	Software Applications	3
CIS 129	Introduction to Programming Logic	3
CIS 171	Introduction to Networking	3
Mathematics	Select one:	4
MATH 113	Intermediate Algebra for College Students	
MATH 126	College Algebra	
	Total Credits: 16	

First Year – Winter Semester

Course #	Course Title	Credits
CNT 115	Cybersecurity Fundamentals	3
CIS 178	Technical Microsoft Windows	3
CIS 223	Introduction to C#	3
CIS 225	Database Management Systems	3
Elective	Select from list	2-3
	Total Credits: 14-15	

Computer Information Systems: Programming Certificate (continued)

Electives

Course #	Course Title	Credits
CIS 122	Microsoft Outlook	2
CIS 211	Introduction to C++	2
CIS 251	IT Project Management	3
CIS 255	Introduction to Linux	3

PROGRAM TOTAL 30-31 CREDITS

Computer Information Systems: Programming AAS Degree

Schoolcraft program code # AAS.00012

As business and industry embrace new technology and procedures, the need for specially trained people accelerates. This program is designed to prepare the student for a position as an entry-level programmer. Students will learn to become proficient in following directions, analyzing problems, and writing step-by-step instructions so that the computer will efficiently process the data needed to solve these problems. Accuracy, persistence, patience, and the ability to communicate both orally and in writing are important characteristics a computer programmer should possess.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
CIS 115	Introduction to Computer Based Systems	3
CIS 129	Introduction to Programming Logic	3
Mathematics	Select one:	4
MATH 113	Intermediate Algebra for College Students	
MATH 126	College Algebra	
COMA 103	Fundamentals of Speech	3
ENG 101	English Composition 1	3
	Total Credits: 16	

First Year – Winter Semester

Course #	Course Title	Credits
ENG 102	English Composition 2	3
CIS 178	Technical Microsoft Windows	3
CIS 225	Database Management Systems	3
Science	General Education Science course	4
CNT 115	Cybersecurity Fundamentals	3
	Total Credits: 16	

Computer Information Systems: Programming AAS Degree (continued)

Second Year – Fall Semester

Course #	Course Title	Credits
CIS 211	Introduction to C++	2
CIS 223	Introduction to C#	3
CIS 255	Introduction to Linux	3
Elective	Select from list	6
	Total Credits: 14	

Second Year – Winter Semester

Course #	Course Title	Credits
CIS 250	Systems Development and Design	4
CIS 290	Object-Oriented Programming With Java	3
CIS 221	Advanced C++	2
Social Science	Select one:	3-4
POLS 105	Survey of American Government	
PSYCH 153	Human Relations	
PSYCH 201	Introductory Psychology	
Elective	Select from list	2-3
	Total Credits: 14-16	

Electives

Course #	Course Title	Credits
CIS 120	Software Applications	3
CIS 122	Microsoft Outlook	2
CIS 171	Introduction to Networking	3
CIS 185	Introduction to HTML	3
CIS 238	JavaScript	3
CIS 251	IT Project Management	3

PROGRAM TOTAL 60-62 CREDITS

Computer Information Systems: Post-Associate Certificate

Schoolcraft program code # PAC.00155

This post-associate certificate in computer science information systems is designed for working professionals who have experience and/or training in the computer field. This certificate will provide study in the newest technology and will enhance students' ability to meet the needs of the ever changing computer information systems environment.

Prior to admission in this program, students must have already completed a minimum of an accredited associate degree in applied science. The post-associate certificate is awarded upon successful completion of 16 credit hours (exact number may vary slightly due to credit value of courses).

Many courses can be taken through independent study. Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Number of credits may vary depending on the course selection.

Program Courses

Course #	Course Title	Credits
CIS 172	Network Security Fundamentals	3
CIS 178	Technical Microsoft Windows	3
CIS 185	Introduction to HTML	3
CIS 211	Introduction to C++	2
CIS 221	Advanced C++	2
CIS 223	Introduction to C#	3
CIS 238	JavaScript	3
CIS 250	Systems Development and Design	4
CIS 251	IT Project Management	3
CIS 255	Introduction to Linux	3
CIS 274	Advanced Linux	3
CIS 290	Object-Oriented Programming With Java	3
CNT 176	Cloud Network Technologies	3
CNT 210	CCNA Networking 1	4
CNT 220	CCNA Networking 2	4
CNT 130	Computer Hardware and Troubleshooting	3
CNT 250	Server Administration 1	3