

COMPUTER INFORMATION SYSTEMS PROGRAMS

The Computer Information Systems programs provide courses to improve students' computer and software knowledge and skills. The CIS Associate in Science degrees enables students to develop and/or upgrade their skills for career advancement. The Certificate of Achievement programs qualify them for entry-level employment in occupational settings that utilize computers and various software applications.

Advanced Computer Programming Associate in Science Degree and Certificate of Achievement*

Be a competent programmer. Write efficient programs that use well defined programming techniques. This degree teaches you many useful algorithms and design patterns. Advance your career as a programmer by learning important concepts in software modeling and program design.

Career Opportunities: Computer Programmer, Software Developer, Web Programmer.

<i>Required Courses:</i>		<i>Units</i>
BUS 19	Business Communications	3
CIS 6	Introduction to Computer Programming	5
CIS 23	C# Programming	4
CIS 27	Data Structures and Algorithms	4
CIS 36A	Java Programming Language I	4
CIS 36B	Java Programming Language II	4
CIS 81	Systems Analysis with UML	3
CIS 82	Design Patterns	4
CIS 83B	Computer Programming Capstone Project	3
	Major Requirements	34
	General Education and Electives	26
	Total:	60

**For the Certificate of Achievement, students must complete the 34 units of required courses. For the Associate Degree, students must complete the 34 units of required courses plus 26 units of General Education requirements and elective courses.*

Advanced Computer Programming

Associate in Science Degree and Certificate of Achievement Recommended Two-Year Course Sequence Beginning in the Fall Semester

You can use the following pattern to complete the Associate in Science Degree or Certificate of Achievement in Advanced Computer Programming. This is only one possible pattern. If you wish to earn an associate degree or certificate, you must participate in the Student Success Program Matriculation, which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map your sequence of courses to help you complete your degree regardless of the semester you begin classes.

<i>Course</i>		<i>Units</i>
	1st Semester/Fall	
BUS 19	Business Communications	3
CIS 6	Introduction to Computer Programming	5
	General Education and Electives	7
	Total Units	15
	2nd Semester/Spring	
CIS 23	C# Programming	4
CIS 36A	Java Programming Language I	4
	General Education and Electives	7
	Total Units	15
	3rd Semester/Fall	
CIS 27	Data Structures and Algorithms	4
CIS 81	Systems Analysis with UML	3
CIS 82	Design Patterns	4
	General Education and Electives	4
	Total Units	15
	4th Semester/Spring	
CIS 36B	Java Programming Language II	4
CIS 83B	Computer Programming Capstone Project	3
	General Education and Electives	8
	Total Units	15

Program Learning Outcomes

Students who complete the program will be able to:

- Solve problems using object-oriented decomposition and write programs using C++, Java, and C# programming languages.
- Apply advanced programming concepts including threads, networking, databases, and graphical user interfaces.
- Use advanced design patterns and algorithms in program design and analyze program complexity.
- Communicate effectively in technical writing.

Advanced Computer Programming

Certificate of Proficiency

In this program, students will learn how to write object-oriented programs using Java and C# programming languages. The courses cover the necessary skills for all computer programming career opportunities. This Certificate of Proficiency prepares students for the Certificate of Achievement in Web Programming.

Career Opportunities: Entry-level computer programmer, web developer.

<i>Required Courses:</i>		<i>Units</i>
CIS 6	Introduction to Computer Programming	5
CIS 23	C# Programming	4
CIS 36A	Java Programming Language I	4
CIS 36B	Java Programming Language II	4
	Total Units	17

Program Learning Outcomes

Students who complete the program will be able to:

- Solve problems using object-oriented decomposition and write programs using C++, Java, and C# programming languages.
- Use IDEs to write, compile, debug, and execute programs.
- Use advanced programming concepts including threads, networking, databases, and graphical user interfaces.

Advanced Windows Desktop

Associate in Science Degree and Certificate of Achievement*

This program will help students advance their careers in IT Desktop Administration and serve as technical resources at work. They will master Microsoft Windows operating systems, networking concepts, and security, and learn to make computers safe, reliable, and efficient at work and home.

Career Opportunities: IT Specialist/Coordinator, Senior Support Technician, Network Administrator/Coordinator, Systems Administrator I

Required Courses:

		Units
CIS 5	Introduction to Computer Science	5
CIS 6	Introduction to Computer Programming	5
CIS 86	Windows Operating Systems	4
CIS 87	Window Server Administration Fundamentals	4
CIS 89	Networking Fundamentals	4
CIS 90	Security Fundamentals	4
CIS 91	Configuring and Supporting a Windows Enterprise System	4
CIS 92	Fundamentals of Linux	4
	Major Requirements	34
	General Education and Electives	26
	Total Units	60

**For the Certificate of Achievement, students must complete the 34 units of required courses. For the Associate Degree, students must complete the 34 units of required courses plus 26 units of General Education requirements and elective courses.*

Advanced Windows Desktop

Associate in Science Degree and Certificate of Achievement Recommended Two-Year Course Sequence Beginning in the Fall Semester

You can use the following pattern to complete the Associate in Science Degree or Certificate of Achievement in Advanced Windows Desktop. This is only one possible pattern. If you wish to earn an associate degree or certificate, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map your sequence of courses to help you complete your degree regardless of the semester you begin classes.

<i>Course</i>		<i>Units</i>
	1st Semester/Fall	
CIS 5	Introduction to Computer Science	5
CIS 86	Windows Operating Systems	4
	General Education and Electives	6
	Total Units	15
	2nd Semester/Spring	
CIS 6	Introduction to Computer Programming	5
CIS 87	Window Server Administration Fundamentals	4
	General Education and Electives	6
	Total Units	15
	3rd Semester/Fall	
CIS 89	Networking Fundamentals	4
CIS 90	Security Fundamentals	4
	General Education and Electives	7
	Total Units	15
	4th Semester/Spring	
CIS 91	Configuring and Supporting a Windows Enterprise System	4
CIS 92	Fundamentals of Linux	4
	General Education and Electives	7
	Total Units	15

Program Learning Outcomes

Students who complete the program will be able to:

- Implement operating system configuration, install and upgrade desktop operating systems.
- Manage applications, files and folders, devices, and server performance.
- Understand Network infrastructure, hardware, protocols, and services
- Understand core security principles and threats, install security software, and manage operating system security and network security.

Advanced Windows Desktop Certificate of Proficiency

This certificate provides the skills students need to master Microsoft Windows operating systems and networking concepts. Students will learn many useful techniques that will make your computers safe, reliable, and function efficiently.

Career Opportunities: Desktop Support Technician, Help Desk Technician, Entry-Level IT Assistant, Computer Support Specialist, Technical Support Level I.

Required Courses:

		<i>Units</i>
CIS 86	Windows Operating Systems	4
CIS 87	Window Server Administration Fundamentals	4
CIS 89	Networking Fundamentals	4
CIS 90	Security Fundamentals	4
	Total Units:	16

Program Learning Outcomes

Students who complete the program will be able to:

- Understand operating system configuration, install and upgrade desktop operating systems.
- Manage applications, files and folders, hardware devices, services, and protocols.
- Understand core security principles and threats, install security software, and manage operating system security and network security.

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Applied Computer Information Systems

Associate in Science and Certificate of Achievement*

The Applied Computer Information Systems Program will improve students' computer and software knowledge and skills, understand how computers work, and be proficient users of computers. They will learn Microsoft Office applications and integrate the different types of software to create professional reports and presentations.

Career Opportunities: program provides the computer skills needed for various entry-level office support and mid-level office management jobs that use computers in their daily work.

<i>Required Courses:</i>		<i>Units</i>
CIS 1	Introduction to Computer Information Systems	4
CIS 42A	Spreadsheet Applications I	2
CIS 42B	Spreadsheet Applications II	2
CIS 86	Windows Operating Systems	4
CIS 105	Basic Mechanics of Web Page Design	1
CIS 231A	Advanced Laboratory Projects in Word	1
CIS 231B	Advanced Laboratory Projects in Outlook	1
CIS 245A	Introduction to Microsoft Access I	2
CIS 245B	Introduction to Microsoft Access II	2
CIS 246	Introduction to Powerpoint	1.5
 Select 16 units from the following:		
BUS 19	Business Communications	3
CIS 5	Introduction to Computer Science	5
CIS 6	Introduction to Computer Programming	5
CIS 87	Window Server Administration Fundamentals	4
CIS 89	Networking Fundamentals	4
CIS 90	Security Fundamentals	4
CIS 91	Configuring and Supporting a Windows Enterprise System	4
CIS 92	Fundamentals of Linux	4
CIS 104	Survey of Programming Languages for the Web	3
CIS 231C	Advanced Laboratory Projects in SharePoint	1
CIS 231D	Advanced Laboratory Projects in OneNote	1
MMART 131A/131LA	Photoshop I and Lab	3
MMART 132A/132LA	Illustrator I and Lab	3
	Major Requirements	36.5
	General Education and Electives	23.5
	Total Units	60

**For the Certificate of Achievement, students must complete the 36.5 units of Core courses. For the Associate Degree, students must complete the 36.5 units of Core courses plus 23.5 units of General Education requirements and elective courses.*

Applied Computer Information Systems

Associate in Science Degree and Certificate of Achievement

Recommended Two-Year Course Sequence Beginning in the Fall Semester

Students can use the following pattern to complete an Associate in Science degree or Certificate of Achievement in Applied Computer Information Systems. This is only one possible pattern. If they wish to earn an associate degree or certificate, they must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

<i>Course</i>		<i>Units</i>
	1st Semester/Fall	
CIS 1	Introduction to Computer Information Systems	4
CIS 105	Basic Mechanics of Web Page Design	1
CIS 246	Introduction to Powerpoint	1.5
	General Education and Electives	8.5
	Total	15
	2nd Semester/Spring	
CIS 42A	Spreadsheet Applications I	2
CIS 42B	Spreadsheet Applications II	2
CIS 231A	Advanced Laboratory Projects in Word	1
CIS 231B	Advanced Laboratory Projects in Outlook	1
	General Education and Electives	9
	Total	15
	3rd Semester/Fall	
CIS 86	Windows Operating Systems	4
CIS 245A	Introduction to Microsoft Access I	2
CIS 245B	Introduction to Microsoft Access II	2
	General Education and Electives	7
	Total	15
	4th Semester/Spring	
	General Education and Electives	15
	Total	15

Program Learning Outcomes

Students who complete the program will be able to:

- Demonstrate knowledge of computer hardware and software and use computers effectively at work and home.
- Demonstrate knowledge of computer terminology and trends in Computer Information Systems.
- Demonstrate proficiency in using operating systems and office productivity applications for work in entry-level employment.

Applied Computer Information Systems

Certificate of Proficiency

In this program, students will develop in-demand computer skills that lead to jobs or increase their productivity and efficiency and prepare for career advancement. They will understand computer hardware and software in order to use computers effectively at work and home. This certificate teaches them the skills they need to be proficient users of computers.

Career Opportunities: Entry-level office jobs

<i>Required Courses:</i>		<i>Units</i>
CIS 1	Introduction to Computer Information Systems	4
CIS 42A	Spreadsheet Applications I	2
CIS 42B	Spreadsheet Applications II	2
CIS 231A	Advanced Laboratory Projects in Word	1
CIS 245A	Introduction to Microsoft Access I	2
CIS 246	Introduction to Powerpoint	1.5
Select 3 units from the following:		
CIS 231B	Advanced Laboratory Projects in Outlook	1
And		
CIS 245B	Introduction to Microsoft Access II	2
Or		
MMART 131A/131LA	Photoshop I and Lab	3
Or		
MMART132A/132LA	Illustrator I and Lab	3
	Total Units	15.5

Program Learning Outcomes

Students who complete the program will be able to:

- Demonstrate knowledge of computer terminology and trends in Computer Information Systems.
- Demonstrate knowledge of computer hardware and software and use computers effectively at work and home.
- Demonstrate proficiency in using office productivity applications for work in entry-level employment.

Web Programming

Associate in Science and Certificate of Achievement*

This program will prepare students for a career in programming for the Internet and the World Wide Web. They will learn client-side and server-side web programming technologies, understand Internet communications and protocols and related technologies, and learn the latest versions of HTML, CSS, JavaScript, Java, and Databases in order to integrate them to create dynamic interactive web pages. Before entering the program, students should have a solid computer literacy background, such as that provided by CIS 1, CIS 5, or CIS 42A/B or the equivalents.

Career Opportunities: web programmer, programmer/analyst, software developer, and information technology professional

<i>Required Courses</i>		<i>Units</i>
BUS 19	Business Communications	3
CIS 6	Introduction to Computer Programming	5
CIS 23	C# Programming	4
CIS 36A	Java Programming Language I	4
CIS 36B	Java Programming Language II	4
CIS 81	Systems Analysis with UML	3
CIS 83A	Web Programming Capstone Project	3
CIS 84	Database Programming for the Web	4
CIS 85	JSP and Servlets	4
CIS 103	Survey of Program/Languages for the Web--Continuation	4
CIS 104	Survey of Programming Languages for the Web	3
MMART 130/130L	Introduction to Digital Art and Lab	3
	Major Requirements	44
	General Education and Electives	16
	Total Units	60

**For the Certificate of Achievement, students must complete the 44 units of required courses. For the Associate Degree, students must complete the 44 units of required courses plus 16 units of General Education requirements and elective courses.*

Web Programming

Associate in Science Degree and Certificate of Achievement Recommended Two-Year Course Sequence Beginning in the Fall Semester

Students can use the following pattern to complete an Associate in Science degree or Certificate of Achievement in Web Programming. This is only one possible pattern. If they wish to earn an associate degree or certificate, they must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

<i>Course</i>		<i>Units</i>
	1st Semester/Fall	
CIS 6	Introduction to Computer Programming	5
MMART 130/130L	Introduction to Digital Art and Lab	3
BUS 19	Business Communication	3
	General Education and Electives	4
	Total	15
	2nd Semester/Spring	
CIS 84	Database Programming for the Web	4
CIS 104	Survey of Programming Languages for the Web	3
CIS 36A	Java Programming Language I	4
	General Education and Electives	4
	Total	15
	3rd Semester/Fall	
CIS 81	Systems Analysis with UML	3
CIS 85	JSP and Servlets	4
CIS 103	Survey of Programming Language for the Web (Continuation)	4
	General Education and Electives	4
	Total	15
	4th Semester/Spring	
CIS 23	C# Programming	4
CIS 36B	Java Programming Language II	4
CIS 83A	Web Programming Capstone Project	3
	General Education and Electives	4
	Total	15

Program Learning Outcomes

Students who complete the program will be able to:

- Apply both client-side and server-side technologies through dynamic webpages that link to back-end server based databases, tracking web sessions using cookies and URL rewriting, and using web security and secure web communications.
- Use good programming practices such as UML and object-oriented programming to write programs.
- Use Java programming language to create new programs.

Web Programming

Certificate of Proficiency

In this program, students will learn how to make their web pages interactive and dynamic and the client-side scripting languages and programming skills needed to be a Web Developer or Software Programmer for the web. This Certificate of Proficiency prepares students for the Certificate of Achievement in Web Programming. Before entering the program, students should have a solid computer literacy background, such as that provided by CIS 1, CIS 5, or CIS 42A/B or the equivalents.

Career Opportunities: Web-Developer, Front-End Developer, HTML Developer.

<i>Required Courses</i>		<i>Units</i>
CIS 6	Introduction to Computer Programming	5
CIS 84	Database Programming for the Web	4
CIS 103	Survey of Program Languages for the Web (Continuation)	4
CIS 104	Survey of Programming Languages for the Web	3
	Total	16

Program Learning Outcomes

Students who complete the program will be able to:

- Apply the fundamentals of programming.
- Use HTML5, CSS, and JavaScript for front-end web development.