

PROGRAMMING, COMPUTER INFORMATION SYSTEMS CERTIFICATE

Award: Certificate in Computer Information Systems

No. of credits required: 32-34

For more information: Contact Business & Applied Technology at bat@harford.edu; or Admissions, 443-412-2109.

Program Description

This certificate program is recommended for students with a baccalaureate degree wishing to explore and/or make a career change to the computer field. The courses prepare students to solve business, administrative or statistical problems by utilizing computer software, language, and systems.

Program Goals

Upon successful completion of this program of study, students will be able to:

1. Analyze the use of commercial software applications, hardware, networks, programming, and other technologies in information systems at a level of competence appropriate to joining the workforce.
2. Use, maintain and modify existing information systems.
3. Design and implement new information systems.
4. Demonstrate the skills to work in a business environment including working in teams, project management, and professional and effective communication with a wider audience.

Employment Information

The *Occupational Outlook Handbook* from the U.S. Department of Labor forecasts that careers in the computer industry are expected to increase by 7% adding over 46,600 positions by 2029. The report indicates continuing growth of the computer industry. The Maryland Department of Labor Occupational Projections forecasts Computer Occupations in Maryland to increase 13.89% by 2028.

Certificate Requirements

In order to earn a certificate from Harford Community College, students must demonstrate basic competencies in English, reading, and mathematics by completing: ENG 018 Integrated Reading and Writing, MATH 020 Pre-Algebra I, and/or a qualifying exam must be passed.

Required Courses

Code	Title	Credits
BA 101	Introduction to Business (GI)	3
CIS 102	Introduction to Information Sciences (GI)	3
CIS 104	Computer Operating Systems	3
CIS 111	Programming I: C/C++	4
or CIS 205	Introduction to Visual Basic.NET Programming	
CIS 115	Fundamentals of Programming	3
CIS 221	Programming II: C/C++	4
ENG 101	English Composition (GE)	3

ENG 209	Technical Writing	3
CSI/CIS Elective ¹		3-4
Programming Elective ²		3-4
Total Credits		32-34

¹ Any CIS/CSI course(s) may be taken to satisfy the CIS elective.

² Programming electives include CIS 111 Programming I: C/C++, CIS 201 Assembly Programming Language, CIS 205 Introduction to Visual Basic.NET Programming, CIS 207 Advanced Visual Basic.NET Programming, CIS 214 Programming II: Java, CIS 215 Advanced Java Programming, CIS 217 Introduction to Web Programming, CIS 219 Server-Side Web Programming, CIS 221 Programming II: C/C++, CIS 225 Introduction to Shell Programming, and CSI 131 Computer Science I and CSI 132 Computer Science II.

General Education Degree Requirements

Note: The following codes identify courses which satisfy the General Education Degree Requirements:

Behavioral/Social Science (GB)
 English Composition (GE)
 Arts/Humanities (GAH)
 Interdisciplinary and Emerging Issues (GI)
 Biological/Physical Laboratory Science (GL)
 Mathematics (GM)
 Biological/Physical Science (GS)