

COMPUTER PROGRAMMING (AS DEGREE S7302)

Business Division Degree S7302

The A.S. Degree in Computer Programming is designed to prepare students for a career in computer programming. The degree offers a balanced set of classes that provides students with client, server and database programming skills required by the industry. Emphasis is placed on object-oriented programming applications, configuring servers, creating and navigating databases, and reusable software components. Students will demonstrate the ability to design and implement business environment applications that will contain the front end user interface and back end database. Student in this program select one of the following three programming language concentrations: C++, Visual Basic.NET or Java. Career opportunities available after the completion of this degree include programming for systems, mobile devices, device drivers and software engineering. Students wishing a bachelor's degree (transfer program) should meet with a counselor or advisor to discuss transferability of courses.

This degree requires the completion of General Education (<https://catalog.mtsac.edu/programs/degrees-certificates/#gerequisitestext>) coursework plus the following:

Required Courses

| Course Prefix | Course Name | Units |
|---|--|--------------|
| Core Courses | | |
| CISB 11 | Computer Information Systems | 3.5 |
| CISB 15 | Microcomputer Applications | 3.5 |
| CISM 11 | Systems Analysis and Design | 3.5 |
| CISP 10 | Principles of Object-Oriented Design | 2.5 |
| Choose from one of the following: | | 3-3.5 |
| CISN 21 | Windows Operating System | |
| or CISN 31 & 31L | Linux Operating System and Linux Operating System Laboratory | |
| Choose from one of the following groups: | | 3.5 |
| CISD 11 & 11L | Database Management - Microsoft Access and Database Management - Microsoft Access Laboratory | |
| Or | | |
| CISD 21 & 21L | Database Management - Microsoft SQL Server and Database Management - Microsoft SQL Server Laboratory | |
| Or | | |
| CISD 31 & 31L | Database Management - Oracle and Database Management - Oracle Laboratory | |
| Required Electives | | |
| Choose one of the following concentrations: | | 3.5-7 |
| C++ | | |
| CISP 31 | Programming in C++ | |
| CISP 31L | Programming in C++ Laboratory | |
| CISP 34 | Advanced C++ Programming | |
| CISP 34L | Advanced C++ Programming Laboratory | |
| Java | | |
| CISP 21 | Programming in Java | |
| CISP 21L | Programming in Java Laboratory | |
| CISP 24 | Advanced Java Programming | |

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|---|--|
| CISP 24L | Advanced Java Laboratory |
| Python | |
| CISP 71 | Programming in Python |
| CISP 71L | Programming in Python Laboratory |
| CISP 74 | Advanced Programming in Python |
| CISP 74L | Advanced Programming in Python Laboratory |
| Web | |
| CISW 17 | HTML, CSS, and JavaScript Programming |
| Choose one lecture/lab combination from the following courses | |
| CISW 31 & 31L | Secure Web Server Programming in PHP and Secure Web Server Programming in PHP Laboratory |
| Or | |
| CISW 24 & 24L | Secure Web Server Programming in Python and Secure Web Server Programming in Python Laboratory |
| Total Units | 23-27 |

CIS Program Website (<http://www.mtsac.edu/cis/>)

Program Learning Outcomes

Upon successful completion of this program, a student will be able to:

- Display data from related database tables.
- Update a SQL Server database.

Review Student Learning Outcomes (SLOs) (<http://www.mtsac.edu/instruction/outcomes/sloinfo.html>) for this program.