

# CIS PROFESSIONAL IN OBJECT-ORIENTED DESIGN & PROGRAMMING (CERTIFICATE M0813)

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## Business Division Certificate M0813

The CIS Professional in Object-Oriented Design and Programming prepares students for a career in computer programming. The certificate offers a balanced set of classes that provides students the skills to design and develop business applications using the Unified Modeling Language (UML) and an object-oriented programming language. Students will demonstrate the ability to design and implement business environment applications that will contain the front end user interface and back end database. Students in this program select one of the following three programming language concentrations: Java, C++, or Python. Career opportunities available after the completion of this certificate include programming for systems, mobile devices, device drivers and software engineering.

## Required Courses

Course Prefix	Course Name	Units
<b>Core Courses</b>		<b>2.5</b>
CISP 10	Principles of Object-Oriented Design	
<b>Choose one of the following programming tracks:</b>		<b>7</b>
<b>Java</b>		
CISP 21	Programming in Java	
CISP 21L	Programming in Java Laboratory	
CISP 24	Advanced Java Programming	
CISP 24L	Advanced Java Laboratory	
<b>C++</b>		
CISP 31	Programming in C++	
CISP 31L	Programming in C++ Laboratory	
CISP 34	Advanced C++ Programming	
CISP 34L	Advanced C++ Programming Laboratory	
<b>Python</b>		
CISP 71	Programming in Python	
CISP 71L	Programming in Python Laboratory	
CISP 74	Advanced Programming in Python	
CISP 74L	Advanced Programming in Python Laboratory	
<b>Total Units</b>		<b>9.5</b>

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

## Program Learning Outcomes

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

- Write valid decision statements (if/else constructs) in either the Java, C++, or Python programming language.
- Create an object oriented program using multiple classes in either the Java, C++, or Python programming language.

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