COMPUTER PROGRAMMING AND ANALYSIS

Associate in Science Degree (CIP# 1511020101)
This program is designed for students who wish to develop skills in computer software development and analysis. The core courses provide knowledge and hands-on training in the foundations of computer technology, computer programming, programming analysis and design, and Web applications development. This program is designed for students who seek immediate employment, and it provides the option for transfer to a Bachelor’s degree.

Students are strongly encouraged to consult a career program advisor in the department office for assistance in determining the best education plan for their career goals.

Although scheduling may not always provide for the following progression of courses, students should use the foundation, intermediate and advanced course sequence as a guide in program planning.

All degree-seeking students must satisfy entry testing requirements and satisfactorily complete all mandatory courses in reading, student success, mathematics, English, and English for Academic Purposes in which the student is placed.

Alternative Ways to Earn Credit
Graduates of specific programs at Orange County Technical Colleges and TECO may be eligible to receive college credit for specific courses in this program. You may also be eligible to receive credit toward this degree if you have earned an approved industry certification or Career Pathways credit. For more information and requirements, go to valenciacollege.edu/asdegrees/transferagreements.cfm (http://valenciacollege.edu/asdegrees/transferagreements.cfm) to view the award of credit options. Eligible students should contact the related academic department and/or Career Program Advisor at Valencia for the award of credit.

Technical Certificates
The Computer Programming A.S. degree also offers the following college credit certificate programs. These certificate programs can put you on the fast-track to reaching your career goals. They are designed to equip you with a specialized skill set for entry-level employment or to upgrade your skills for job advancement. Most can be completed in one year or less, and all of the courses in the certificate programs are embedded in the A.S. degree. Click on the Certificate tab at the top of the page for more information about the course requirements.

Computer Programming Specialist (18 credits)
• Computer Programming Specialization (CIP # 0511020103)
• Web Development Specialization (CIP # 0511020103)

Computer Programming (33 credits)
• Computer Programming Specialization (CIP # 0511020200)
• Web Development Specialization (CIP # 0511020200)

Start Right
Degree-seeking students enrolling at Valencia for the first time will have a limited range of courses from which to choose for their first 18 college-level credits. Within the first 18 college credit hours, you will be required to take ENC1101 (3 credits), and if applicable, SLS 1122 (3 credits) and a mathematics course appropriate to your selected meta-major (3 credits). The remaining courses will be chosen from the General Education Core Courses in humanities (3 credits), science (3 credits), or social science (3 credits), and/or the introductory courses within the A.S. degree programs. For specific courses see the Foundation Courses on the "Program Requirements" tab. For course sequencing recommendations, see your Career Program Advisor or create an education plan by logging into Atlas, clicking on the LifeMap tab and clicking My Education Plan.

Potential Careers
• Computer Programmer
• Senior Programmer
• Programmer Analyst
• Systems Programmer
• Programmer Specialist
• Web Programmer
• Web Developer
• Web Master

Salary & Earnings Information
For salary and wage information, visit: www.floridawages.com (http://www.floridawages.com).

Contacts
Future Students
Contact Enrollment Services at enrollment@valenciacollege.edu or call 407-582-1507.

Current Students
East Campus
Dave Brunick, Program Chair: 407-582-2360
dbrunick@valenciacollege.edu
Laurea Sickler, Career Program Advisor: 407-582-2504
lsickler@valenciacollege.edu

West Campus
Joan Alexander, Program Chair: 407-582-1542
jalexander@valenciacollege.edu
Jon Sowell, Career Program Advisor, West Campus: 407-582-1973
jsowell@valenciacollege.edu

Osceola Campus
Ray Enger, Program Chair: 407-582-4118
renger@valenciacollege.edu
Roxana Boulos, Career Program Advisor: 407-582-4231
rboulos1@valenciacollege.edu (mgonzalez10@valenciacollege.edu)

Internship and Workforce Services
If you need assistance with job resources or in locating an internship, please visit: valenciacollege.edu/internship (http://valenciacollege.edu/internship).

Program Outcomes
• Analyze technical problems as related to customer requirements.
• Design a logical plan for the development of a software solution.
• Implement software solutions including documentation.
• Evaluate software problems, plans, and solutions for correctness and appropriateness.
Communicate effectively with technical and non-technical audiences.

### Foundation Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEB 1011</td>
<td>Introduction To Business</td>
<td>3</td>
</tr>
<tr>
<td>COP 1000C</td>
<td>INTRODUCTION TO PROGRAMMING CONCEPTS †</td>
<td>3</td>
</tr>
<tr>
<td>CTS 1131C</td>
<td>COMPUTER MAINTENANCE ESSENTIALS</td>
<td>3</td>
</tr>
<tr>
<td>CGS 2100C</td>
<td>COMPUTER FUNDAMENTALS AND APPLICATIONS</td>
<td>3</td>
</tr>
<tr>
<td>COP 2822C</td>
<td>WEB SITE DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>ENC 1101</td>
<td>FRESHMAN COMPOSITION I</td>
<td></td>
</tr>
<tr>
<td>MAC 1105</td>
<td>College Algebra</td>
<td></td>
</tr>
<tr>
<td>SLS 1122</td>
<td>New Student Experience</td>
<td></td>
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</table>

### Intermediate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CTS 1142C</td>
<td>INFORMATION TECHNOLOGY PROJECT MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>CGS 2091C</td>
<td>SOCIAL, LEGAL AND ETHICAL ISSUES IN INFORMATION TECHNOLOGY</td>
<td></td>
</tr>
<tr>
<td>CGS 2545C</td>
<td>DATABASE MANAGEMENT SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>Humanities</td>
<td>See Gen. Ed. Core or Institutional Requirement</td>
<td></td>
</tr>
<tr>
<td>Social Science</td>
<td>See Gen. Ed. Core Requirement</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

- COP 2220C C PROGRAMMING ‡
- COP 2800C JAVA PROGRAMMING ‡
- COP 2360C C# PROGRAMMING ‡

### Advanced Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP 2830C</td>
<td>SCRIPTING LANGUAGES</td>
<td></td>
</tr>
<tr>
<td>CIS 2910C</td>
<td>IT CAPSTONE ‡</td>
<td></td>
</tr>
<tr>
<td>CIS 2942</td>
<td>INTERNSHIP IN COMPUTER PROGRAMMING</td>
<td>1</td>
</tr>
<tr>
<td>or CGS 2650</td>
<td>Social Networking Job Search</td>
<td></td>
</tr>
</tbody>
</table>

Computer Programming and Analysis Elective

Select one of the following:

- COP 2224C C++ Programming ‡
- COP 2362C ADVANCED C# PROGRAMMING ‡
- COP 2805C ADVANCED JAVA PROGRAMMING ‡

### Computer Programming and Analysis Electives

Any course in the course description section of the Valencia catalog with the subject prefix of CAP, CET, CGS (except CGS 1060), CIS, COP, COT, or CTS.

### Notes:

- This course must be completed with a grade of C or better.
- This course has a prerequisite; check description in Valencia catalog.
- This is a general education course.
- Students with prior programming experience who pass a waiver examination will be allowed to substitute a higher-level course for this course.
- Students who were not required to take MAC 1105 College Algebra may use a more advanced MAC, or approved equivalent, course to meet the math requirement.
- CIS 2910C IT CAPSTONE is taken in the last semester or with department approval and satisfactory completion of all mandated discipline specific foundation and intermediate technical courses.

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### Specialized courses may not be offered every session or on every campus.

### Computer Programming with Specializations in:

- Computer Programming
- Web Development

### Technical Certificate

This certificate is designed for students who wish to develop skills in computer programming or Web development.

### Foundation Courses

<table>
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<tr>
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<tr>
<td>COP 1000C</td>
<td>INTRODUCTION TO PROGRAMMING CONCEPTS †</td>
<td>3</td>
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<td>COMPUTER MAINTENANCE ESSENTIALS</td>
<td>3</td>
</tr>
<tr>
<td>COP 2822C</td>
<td>WEB SITE DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>CGS 2545C</td>
<td>DATABASE MANAGEMENT SYSTEMS</td>
<td>3</td>
</tr>
</tbody>
</table>

### Specialization (See below)

**Computer Programming and Analysis Electives**

- 9 credits

**Total Credit Hours**

33

### Web Development Specialization

**Program Outcomes**

- Analyze technical problems as related to customer requirements.
- Design a logical plan for the development of a software solution.
- Implement software solutions including documentation.
- Evaluate software problems, plans, and solutions for correctness and appropriateness.

Select one of the following:

- COP 2220C C PROGRAMMING ‡
- COP 2800C JAVA PROGRAMMING ‡
- COP 2360C C# PROGRAMMING ‡

**Computer Programming and Analysis Electives**

- 6 credits

**Total Credit Hours**

12

### Web Development Specialization

**Program Outcomes**

- Analyze technical problems as related to customer requirements.
- Design a logical plan for the development of a Web-based solution.
- Implement Web-based solutions including documentation.
• Evaluate Web-based problems, plans, and solutions for correctness and appropriateness.

COP 2830C  SCRIPTING LANGUAGES *  3
CGS 2786C  Web Development Tools  3
COP 1812C  XML and Web Services  3

Computer Programming and Analysis Electives  3

Total Credit Hours  12

+ This course must be completed with a grade of C or better
* This course has a prerequisite; check description in Valencia catalog.
1 Students with prior programming experience who pass a waiver examination will be allowed to substitute a higher-level course for this course.

**Notes:**
Specialized courses may not be offered every session or on every campus.

This certificate program is eligible for Financial Aid.

**Computer Programming Specialist with Specializations in**

• Computer Programming
• Web Development

**Technical Certificate**

This certificate is designed for students who wish to gain a foundation in software development.

COP 1000C  INTRODUCTION TO PROGRAMMING CONCEPTS *1  3
CTS 1131C  COMPUTER MAINTENANCE ESSENTIALS  3

Computer Programming and Analysis Electives  6

Specialization (See below)  6

Total Credit Hours  18

**Computer Programming Specialization**

**Program Outcomes**

• Analyze technical problems as related to customer requirements.
• Design a logical plan for the development of a software solution.
• Implement software solutions including documentation.
• Evaluate software problems, plans, and solutions for correctness and appropriateness.

Select one of the following:  3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP 2220C</td>
<td>C PROGRAMMING</td>
<td>*</td>
</tr>
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<td>COP 2800C</td>
<td>JAVA PROGRAMMING</td>
<td>**</td>
</tr>
<tr>
<td>COP 2360C</td>
<td>C# PROGRAMMING</td>
<td>**</td>
</tr>
</tbody>
</table>

Computer Programming and Analysis Electives  3

Total Credit Hours  6

**Web Development Specialization**

**Program Outcomes**

• Analyze technical problems as related to customer requirements.
• Design a logical plan for the development of a Web-based solution.
• Implement Web-based solutions including documentation.
• Evaluate Web-based problems, plans, and solutions for correctness and appropriateness.

COP 2822C  WEB SITE DEVELOPMENT +  3
COP 2830C  SCRIPTING LANGUAGES *  3

Total Credit Hours  6

+ This course must be completed with a grade of C or better.
* This course has a prerequisite; check description in Valencia catalog.
1 Students with prior programming experience who pass a waiver examination will be allowed to substitute a higher-level course for this course.

**Notes:**
Specialized courses may not be offered every session or on every campus.