DRAFTING AND DESIGN TECHNOLOGY

Associate in Science Degree (CIP 1615130102)

This program is designed to train technicians to assist engineers by translating ideas, rough sketches, specifications and calculations into complete and accurate working drawings. In addition, instruction is given in three CADD (Computer Aided Drafting and Design) courses which prepares the student for employment with institutions using computer assisted engineering and design.

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 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 Drafting and Design 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.

- Rapid Prototyping Specialist - 3-D Printing (12 credits) (CIP # 0615000012)
- Drafting - AutoCAD (15 credits) (CIP # 0615130204)
- Drafting with Specializations in: (24 credits)
  - Architectural Drafting (CIP # 0615130101)
  - Mechanical Drafting (CIP # 0615130101)
  - Surveying Drafting (CIP # 0615130101)

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

- Drafting and Design Technician
- Mechanical Engineering Assistant
- CADD Operator/Specialist
- CADD Drafting Technician/Specialist
- Mechanical Drafter
- Architectural Drafter
- Drafting Designer
- Tooling Drafter

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

Andrew Ray, R.A, Program Chair, West Campus: 407-582-1847
aray@valenciacollege.edu

Beverly Johnson, Career Program Advisor, West Campus: 407-582-1890
bjohnson@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

- Accept professional and ethical responsibilities required by industry.
- Communicate effectively with technical and non-technical audiences.
- Analyze systems and processes used to create the built environment.
- Solve design problems using algebraic and trigonometric functions.
- Efficiently utilize current professional software to generate 2D and 3D drawings.

Foundation Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETD 1031C</td>
<td>INTRODUCTION TO CONSTRUCTION/DRAFTING TECHNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>ETD 1100C</td>
<td>ENGINEERING DRAWING</td>
<td>3</td>
</tr>
<tr>
<td>ETD 1320C</td>
<td>INTRODUCTION TO CADD</td>
<td>3</td>
</tr>
<tr>
<td>ENC 1101</td>
<td>FRESHMAN COMPOSITION I *</td>
<td>3</td>
</tr>
<tr>
<td>Humanities</td>
<td>See Gen. Ed. Core Requirement ~</td>
<td>3</td>
</tr>
<tr>
<td>Social</td>
<td>See Gen. Ed. Core Requirement ~</td>
<td>3</td>
</tr>
</tbody>
</table>

*For specific requirements, please consult the course catalog.
Drafting and Design Technology

Intermediate Courses
- BCN 2405 Statics and Strength Materials * 3
- ETC 1251C ENGINEERING MATERIALS AND PROCESSES 3
- ETD 1304C ADVANCED CADD 3
- ETD 1701C Mechanical Drafting I 3
- MTB 2321C TECHNICAL MATHEMATICS 3
- SUR 1101C BASIC SURVEYING MEASUREMENTS * 3
- TAR 1120C ARCHITECTURAL DRAWING I * 3

Advanced Courses
- ETD 2355C 3-D CADD 3
- ETD 2614C ELECTROMECHANICAL DRAFTING 3
- ETD 2731C Mechanical Drafting II 3

Drafting Design Technology Electives
8

Total Credit Hours
62

Architectural Drafting Specialization

Program Outcomes
- Efficiently utilize current professional software to generate 2D and 3D drawings.
- Solve design problems using algebraic and trigonometric functions.
- Analyze systems and processes used to create the built environment.

Architectural Drafting Specialization Electives
- BCN 1272 CONSTRUCTION BLUEPRINT READING 3
- BCN 2941 INTERNSHIP EXPLORATION IN ARCHITECTURAL DRAFTING * 1-4
- BCT 2770C BUILDING CONSTRUCTION ESTIMATING (FORMERLY BCT 2600) 3
- ETD 2355C 3-D CADD 3
- ETC 1251C ENGINEERING MATERIALS AND PROCESSES 3
- SUR 2390C INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS 3
- TAR 1120C ARCHITECTURAL DRAWING I * 3
- TAR 2033C ARCHITECTURAL DESIGN * 3

* This course has a prerequisite; check description in Valencia catalog.

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.
- (GR) Denotes a Gordon Rule course.

Mechanical Drafting Specialization

Program Outcomes
- Efficiently utilize current professional software to generate 2D and 3D drawings.
- Solve design problems using algebraic and trigonometric functions.

Mechanical Drafting Specialization Electives
- ETD 1701C Mechanical Drafting I 3
- ETD 2355C 3-D CADD 3
- ETD 2614C ELECTROMECHANICAL DRAFTING 4
- ETD 2731C Mechanical Drafting II 3
- ETD 2941 INTERNSHIP EXPLORATION IN DRAFTING AND DESIGN * 1-4
- SUR 2390C INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS 3

* This course has a prerequisite; check description in Valencia catalog.

Surveying Drafting Specialization

Program Outcomes
- Efficiently utilize current professional software to generate 2D and 3D drawings.
- Solve design problems using algebraic and trigonometric functions.
- Perform basic civil/surveying techniques and related calculations.

Notes:
- All specialized program courses are offered on the West Campus; some specialized courses are offered at other locations.
- Associate in Science (A.S.) Degree students who wish to pursue a Bachelor’s Degree have the opportunity to transfer into a related bachelor’s degree (2 +2) that is offered at any state college in Florida. Students who want to continue their education should discuss the career path with their Career Program Advisor, as well as contact their State College of choice for acceptance of this degree.
- Specialized courses may not be offered every session or on every campus.

Drafting with Specializations in
- Architectural Drafting
- Mechanical Drafting
- Surveying Drafting

Technical Certificate
This program is designed to prepare individuals for entry-level positions in architectural, mechanical, and surveying drafting that require computer-aided drafting skills. The content prepares the student to draw, dimension, and print drawings by computer in the respective specialization area.

Foundation Courses

E TD 1100C ENGINEERING DRAWING 3
- E TD 1320C INTRODUCTION TO CADD 3
- E TD 1320C ADVANCED CADD 3
- Specialization Electives (All from the same Specialization) 12
- MTB 2321C TECHNICAL MATHEMATICS 3
Surveying Drafting Specialization Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUR 1101C</td>
<td>BASIC SURVEYING MEASUREMENTS (Surveying I)</td>
<td>3</td>
</tr>
<tr>
<td>SUR 2202C</td>
<td>HIGHWAY DRAFTING AND ROUTE DESIGN *</td>
<td>3</td>
</tr>
<tr>
<td>SUR 2390C</td>
<td>INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>SUR 2460C</td>
<td>Subdivisions *</td>
<td>3</td>
</tr>
<tr>
<td>SUR 2941</td>
<td>Intern Expl in Surveying *</td>
<td>1-4</td>
</tr>
</tbody>
</table>

* This course has a prerequisite; check description in Valencia catalog.

Notes:

All certificate courses are offered on the West Campus; some courses are offered at other locations.

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

Rapid Prototyping Specialist

Technical Certificate

This certificate is intended for students to learn the fundamentals of rapid prototyping to analyze designs and create 3D models using a variety of 3D scanners and printers. The basics of solid modeling software, primarily Solidworks, will be explored in the creation of STL (StereoLithography) files for 3D printing. Design Analysis techniques will be used to analyze models for appropriate design concepts and material usage. Working in a collaborative team environment, students will learn to effectively analyze model results for successfully achieving design parameters.

Program Outcomes

- Efficiently utilize current professional software to generate 3D digital models.
- Demonstrate understanding of the concepts, applications, and hardware used in digital manufacturing processes.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETD 1100C</td>
<td>ENGINEERING DRAWING</td>
<td>3</td>
</tr>
<tr>
<td>ETD 1320C</td>
<td>INTRODUCTION TO CADD</td>
<td>3</td>
</tr>
<tr>
<td>ETD 1340C</td>
<td>ADVANCED CADD</td>
<td>3</td>
</tr>
<tr>
<td>ETD 2355C</td>
<td>3-D CADD</td>
<td>3</td>
</tr>
<tr>
<td>ETD 2371C</td>
<td>Intro to 3D Printing *</td>
<td>3</td>
</tr>
<tr>
<td>ETD 2372C</td>
<td>Advanced Rapid Prototyping *</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

* This course has a prerequisite; check description in Valencia catalog.

Notes:

All certificate courses are offered on the West Campus; ETD 1340C is also offered on East Campus. Specialized courses may not be offered every session or on every campus.

Drafting - AutoCAD

Technical Certificate

This program is designed for a professional or entry-level individual in a technical area that requires computer-aided drafting skills. The content prepares the student to draw, dimension, and print technical drawings by computer.

Program Outcomes

- Solve design problems using algebraic and trigonometric functions.
- Efficiently utilize current professional software to generate 2D and 3D drawings.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETD 1340C</td>
<td>ADVANCED CADD</td>
<td></td>
</tr>
<tr>
<td>ETD 2355C</td>
<td>3-D CADD</td>
<td>3</td>
</tr>
<tr>
<td>ETD 2371C</td>
<td>Intro to 3D Printing *</td>
<td>3</td>
</tr>
<tr>
<td>ETD 2372C</td>
<td>Advanced Rapid Prototyping *</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Notes:

All certificate courses are offered on the West Campus; some courses are offered at other locations.

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