3. Demonstrate basic competence in the use of at least one CAD software program. (Setup a drawing, create and modify text and geometry, use associative dimensioning correctly, create, store, and use blocks or symbols, manage object properties including line-type and layer, create objects in three dimensions, and print or plot drawings using a correct scale.)

4. Demonstrate basic graphical literacy.

5. Explain basic standard practices in architectural and mechanical drafting.

6. Interpret the concepts of a problem-solving task and translate them into mathematical language, and solve using mathematical operations.

7. Students will produce 3D parametric models that enable learners to think and create in three dimensions with sophisticated design software. These solid models are the principal means of communicating design ideas and developing new products and systems in the Architectural, Engineering, and Construction Industries. Students will then be able to utilize a 3D printer to create an actual model.

8. Use graphic principles in the solution of problems relating to drafting and/or design.

9. Access information from public libraries, research libraries, online sources, appropriate codes and standards, professional organizations, and vendor catalogs.

10. Produce drawings in accordance with industry standards, e.g., ANSI/ASME, AIA, building codes.

**Admission Information**
See [lanec.edu/advtech/dft](http://lanec.edu/advtech/dft) or contact the Advanced Technology Division, AdvTechPrograms@lanec.edu

**Cooperative Education (Co-op)**
Co-op offers drafting students college credit and a grade for on-the-job work experience related to their educational and career goals. Through Co-op, students connect theory and practice, develop skills, expand career knowledge, and make contacts for the future. Work schedules and work sites vary. Contact Gerry Meenaghan, Drafting Co-op Coordinator, Bldg 19, Rm. 231A. 541.463.5883, meenaghan@lanec.edu

**Job Openings Projected through 2020**
Lanec County openings - 4 annually
Statewide openings - 66 annually

**Wages**
Lanec County average hourly - $22.88 to $26.23; average annual - $47,575 to $54,562

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**Drafting**

**Associate of Applied Science Degree**

**One-Year Certificate of Completion**

**Purpose**
To prepare students for careers in architectural and mechanical drafting. The profession requires attention to detail and the ability to learn mathematical, visual, and communication skills. Architectural Drafters may work for a residential designer, a structural engineer, an architect, a cabinet shop, or a construction firm. Mechanical Drafters may work in the manufacture of electronics, precision sheet metal, heavy equipment, steel fabrication, process piping, and plastics.

**Learning Outcomes**
The graduate will be able to:

- Demonstrate basic graphical literacy.
- Explain basic standard practices in architectural and mechanical drafting.
- Interpret the concepts of a problem-solving task and translate them into mathematical language, and solve using mathematical operations.
- Students will produce 3D parametric models that enable learners to think and create in three dimensions with sophisticated design software. These solid models are the principal means of communicating design ideas and developing new products and systems in the Architectural, Engineering, and Construction Industries. Students will then be able to utilize a 3D printer to create an actual model.
- Use graphic principles in the solution of problems relating to drafting and/or design.
- Access information from public libraries, research libraries, online sources, appropriate codes and standards, professional organizations, and vendor catalogs.
- Produce drawings in accordance with industry standards, e.g., ANSI/ASME, AIA, building codes.

**Costs**
(Estimate based on 2016-17 tuition and fees. Consult Lane's website for updated tuition.)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Books</td>
<td>$2,591</td>
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<td>Program Specific Fees</td>
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<tr>
<td>Resident Tuition and General Student Fees</td>
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<tr>
<td><strong>Total Estimated Cost</strong></td>
<td><strong>$13,405</strong></td>
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*Course fees may change during the year. See the online credit class schedule for fees assigned to courses.

**Course Requirements**

- Prerequisites are required for some courses. See course descriptions.
- PE/Health requirement, WR 121, and DRF 206 must be completed with a grade of “P” or “C-” or better.
- Human Relations and Health/PE choices are listed on the Associate of Applied Science degree page.
- All DRF and CST courses must be completed with a letter grade, not P/NP, and must be passed with a grade of “C-” or better to satisfy program requirements.
- Minimum placement score of 68 in Reading, OR completion of RD 080, OR RD 087 AND EL 115, OR prior college. A high school diploma or equivalent is recommended for all applicants to this program. Basic computer literacy skills are a prerequisite to any CAD course.

**First Year**

**Fall**

- Human Relations Requirement
- CS120 Concepts of Computing: Information Processing or higher computer science
- MTH 075 Applied Algebra for Technicians or higher mathematics
- DRF 160 Computer-Aided Drafting and Design

**Winter**

- DRF 137 Architectural Plans
- Directed Elective
- MTH 085 Applied Geometry for Technicians or higher mathematics
- CST 122 Construction Codes

**Spring**

- ET 121 Shop Practices
- COOP 206 Co-op Ed: Internship Seminar
- Choice of:
  - WR 121 Academic Composition
  - WR 121, H Academic Composition
  - DRF 121 Mechanical Drafting
  - DRF 245 Solid Modeling

**Second Year**

**Fall**

- DRF 235 Mechanical Design Skills
- DRF 210 Commercial Buildings
- DS 155 Heavy Equipment Hydraulics
- PE/Health Requirement
- DRF 205 Drafting: Structures
Drafting

Offered by the Advanced Technology Division, 541.463.5380

One-Year Certificate of Completion

Program Coordinator Tracy Rea, Bldg 15, Rm. 201, 541.463.5151,
reat@lanecc.edu

Purpose To prepare students for careers in architectural and mechanical drafting. The profession requires attention to detail and the ability to learn mathematical, visual, and communication skills. Architectural Drafters may work for a residential designer, a structural engineer, an architect, a cabinet shop, or a construction firm. Mechanical Drafters may work in the manufacture of electronics, precision sheet metal, heavy equipment, steel fabrication, process piping, and plastics.

Learning Outcomes The student who successfully completes all Drafting requirements will:

- demonstrate basic competence in the use of at least one CAD software program. (Setup a drawing, create and modify text and geometry, use associative dimensioning correctly, create, store, and use blocks or symbols, manage object properties including line type and layer, create objects in three dimensions, and print or plot drawings using a correct scale.).
- demonstrate basic graphical literacy.
- explain basic standard practices in architectural and mechanical drafting.
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Admission Information See lanecc.edu/advtech/dft or contact the Advanced Technology Division, AdvTechPrograms@lanecc.edu

Advising and Counseling classes.lanecc.edu/course/view.php?id=31255

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Job Openings Projected through 2020
Lane County: 4 positions
Statewide: 66 positions

Wages
Lane County average hourly - $22.88 to $26.23; average annual - $47,575 to $54,562
Oregon average hourly - $25.41 to $27.79; average annual - $52,861 to $57,799

Costs (Estimate based on 2016-17 tuition and fees. Consult Lane’s website for updated tuition.)
Books .......................................................... $1,317
Program Specific Fees ........................................... $140
Resident Tuition and General Student Fees ..................... $5,152
Total Estimated Cost $6,609

*Course fees may change during the year. See the online credit class schedule for fees assigned to courses.

Gainful Employment Disclosure
17-3011.01
Go to the Department of Labor’s O*Net website for a profile of this occupation: Architectural Drafters onetonline.org/link/summary/17-3011.01 Or check on these O*Net Related Occupations: Civil Drafters onetonline.org/link/summary/17-3011.02 Mechanical Drafters onetonline.org/link/summary/17-3013.00
In academic year 2014-15, 9 students completed this certificate.

The program is designed to take 4 terms, or about 15 months of study to complete.

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# Drafting

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<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>CS 120 Concepts of Computing: Information Processing or higher computer science</td>
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<tr>
<td></td>
<td>Human Relations Requirement</td>
<td>3</td>
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<tr>
<td></td>
<td>MTH 075 Applied Algebra for Technicians or higher mathematics</td>
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<tr>
<td></td>
<td>DRF 160 Computer-Aided Drafting and Design</td>
<td>4</td>
</tr>
<tr>
<td><strong>Winter</strong></td>
<td>DRF 137 Architectural Plans</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MTH 085 Applied Geometry for Technicians or higher mathematics</td>
<td>4</td>
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<tr>
<td></td>
<td>Directed Elective: Choose One</td>
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<tr>
<td></td>
<td>CST 122 Construction Codes</td>
<td>2</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Choice of: WR 121 Academic Composition</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ET 121 Shop Practices</td>
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<td>COOP 206 Co-op Ed: Internship Seminar</td>
<td>2</td>
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<tr>
<td></td>
<td>DRF 121 Mechanical Drafting</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>DRF 245 Solid Modeling</td>
<td>4</td>
</tr>
</tbody>
</table>

**Directed Electives**
- ART 216 Digital Design Tools
- CIS102 Problem Solving with Computers
- CIS140W Intro to Oper Systems: Windows
- CS179 Intro to Computer Networks
- CST 116 Construction Estimating
- GIS 151 Digital Earth
- GIS 245 GIS 1
- GS 104 Physical Science (physics)
- GS 105 Physical Science (chemistry)
- MUL 212 Digital Imaging
- WLD 143 Wire Drive Welding 1