

# Drafting Technician

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## Program Description

This program is designed to provide students with entry level skills in the fields of mechanical, electrical, civil and architectural drafting.

## Certificate of Achievement and Associate in Science Degree

A Certificate of Achievement can be obtained upon completion of the 30-unit major listed below. The Associate in Science Degree can be obtained by completing a total of 60 units, including the major, general education requirements, and electives. All courses in the major must be completed with a grade of C or better or a P if the course is taken on a pass-no pass basis.

## Program Outcomes

Students who complete the Certificate of Achievement/Associate Degree will be able to:

1. Demonstrate proficiency at reading, drawing and dimensioning industry standard drawings in the fields of Mechanical, Civil, Architectural and Electronic drafting and design.
2. Demonstrate proficiency using industry standard computer aided drafting/design CAD software programs.

## Required Courses . . . . . Units

DRFT 045 Introduction to Computer-Aided Drafting (CAD) . . . . .	3
DRFT 046 Advanced CAD . . . . .	3
DRFT 050 Basic Drafting . . . . .	3
DRFT 055 Mechanical Drafting - Level I . . . . .	3
DRFT 060 Architectural Drafting I . . . . .	3
DRFT 075 Electronic Drafting . . . . .	3
DRFT 080 Civil Drafting I . . . . .	3
IT 140 Industrial Materials . . . . .	3
IT 151 Vocational Mathematics . . . . .	3
DRFT 125 Solid Modeling with Solidworks . . . . .	3
<b>Total Units . . . . .</b>	<b>30</b>

## Recommended Electives

DRFT 056 Descriptive Geometry
DRFT 057 Mechanical Drafting - Level II
DRFT 065 Architectural Drafting II
DRFT 070 Technical Illustration and Design
DRFT 079 Blueprint Reading
DRFT 085 Civil Drafting II
DRFT 092 Special Problems
DRFT 130 Advanced Printed Circuit Board Design
DRFT 135 Structural & Detail Drafting
DRFT 140 Surveying
INTD 052 Drafting and Perspective Drawing for Interiors
IT 150 Industrial Processes
OCED 090 Occupational Work Experience
OCED 091 General Work Experience
HORT 030 Landscape Design I

**NOTE: Many of the advanced courses will require CAD. It is important to take DRFT 045 (Intro. to CAD) as early in your program as possible. College credit may be obtained with credit by examination in DRFT 045, 050, and 060 or they may be waived.**

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## Survey Technician/Civil Drafting Technician

### Program Description

This program is designed to provide students with entry level skills in the fields of Surveying Technician, Civil Drafting Technician, and/or mapping technician.

### Certificate of Achievement and Associate in Science Degree

A Certificate of Achievement can be obtained upon completion of 27 core requirement units. An Associate of Science degree may be obtained by completing 27 core units in addition to 15 units of restricted elective courses and 21 units of General Education.

### Program Outcomes

This information is not available at the time of printing. Please check online for current information as it is available.

Required Courses	Units
DRFT 045 Introduction to Computer-Aided Drafting (CAD)	3
DRFT 046 Advanced CAD	3
DRFT 050 Basic Drafting	3
DRFT 060 Architectural Drafting I	3
GEOL 010 Introduction to Geographic Information Systems	3
<i>or</i>	
GEOG 010 Introduction to Geographic Information Systems	3
DRFT 080 Civil Drafting I	3
DRFT 085 Civil Drafting II	3
DRFT 140 Surveying	3
IT 151 Vocational Mathematics	3
<b>Total Units</b>	<b>27</b>

### Electives for Associate of Science degree

DRFT 056 Descriptive Geometry
DRFT 065 Architectural Drafting II
DRFT 070 Technical Illustration and Design
DRFT 079 Blueprint Reading
DRFT 092 Special Problems
IT 150 Industrial Processes
GEOL 001 Physical Geology
GEOL 002 Geology Laboratory
GEOL 005 Geology of California
GEOG 060 Advanced Geographic Information Systems
GEOG 061 Introduction to Global Positioning Systems
GEOG 062 Advanced Global Positioning Systems

**\*Course advisory for all courses: Solano Community College minimum English and Math Standards.**

**\*Drafting 050 should be taken in the first semester of study.**

**^IT 151 Vocational Math.**

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<b>DRFT 045</b> <b>Introduction to Computer-Aided Drafting (CAD)</b> <i>Course Advisory: SCC minimum English and math standards; DRFT 050; drafting experience helpful.</i> Designed to introduce the drafting student to CAD technology and terminology. The student shall complete a series of related drawing problems using a CAD work station. Repeatable 1 time. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>	<b>DRFT 050</b> <b>Basic Drafting</b> <i>Course Advisories: SCC minimum English and math standards.</i> Presents the fundamentals of drafting, including the use of instruments, lettering, freehand sketching, orthographic projection, dimensioning and sectioning. Recommended for non-majors and drafting majors. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>
<b>DRFT 045A</b> <b>Introduction to Computer-Aided Drafting (CAD) - Part 1</b> <i>Course Advisory: DRFT 050 or drafting experience helpful; SCC minimum English and math standards.</i> Designed to introduce the drafting student to CAD technology and terminology. The student shall complete a series of related drawing problems using a CAD work station. Repeatable 1 time. <i>One hour lecture, two hours lab.</i>	<b>1.5 Units</b>	<b>DRFT 055</b> <b>Mechanical Drafting Level I</b> <i>Prerequisite: DRFT 050 and DRFT 045. Course Advisories: SCC minimum English and math standards.</i> Emphasizes sectioning, pictorials, threads, fasteners, springs, tolerancing, measurement, and working drawings. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>
<b>DRFT 045B</b> <b>Introduction to Computer-Aided Drafting (CAD) - Part 2</b> <i>Prerequisite: DRFT 045A. Course Advisory: DRFT 050 or drafting experience helpful. SCC minimum English and math standards.</i> Designed to introduce the drafting student to CAD technology and terminology. The student shall complete a series of related drawing problems using a CAD work station. Repeatable 1 time. <i>One hour lecture, two hours lab.</i>	<b>1.5 Units</b>	<b>DRFT 056</b> <b>Descriptive Geometry</b> <i>Prerequisites: DRFT 050; IT 151; DRFT 045. Course Advisories: SCC minimum English and math standards.</i> Presents fundamental principles of descriptive geometry and their application to the solution of three dimensional problems. Included are true lengths and shapes; bearing and slopes; point, line and shape problems, advanced auxiliaries, revolutions, intersections and developments. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>
<b>DRFT 046</b> <b>Advanced Computer Aided Drafting (CAD)</b> <i>Prerequisite: DRFT 045 and DRFT 050. Course Advisories: SCC minimum English and math standards.</i> Designed to develop advanced proficiency in CAD. Covers symbol libraries, isometrics, external references (XREFS), 3-D drawing, basic solid modeling, tables and customization techniques. Repeatable 1 time. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>	<b>DRFT 057</b> <b>Mechanical Drafting Level II</b> <i>Prerequisites: DRFT 055 with a grade of 'C' or better; IT 151 (may be taken concurrently). Course Advisories: SCC minimum English and math standards.</i> A continuation of Drafting 55, with special emphasis on geometric tolerancing, gears, cams, electro-mechanical packaging, and advanced working drawings. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>
<b>DRFT 046A</b> <b>Advanced CAD—Part 1</b> <i>Prerequisites: DRFT 045 (or DRFT 045B) and DRFT 050. Course Advisories: SCC minimum English and math standards.</i> Designed to develop advanced proficiency in CAD. Covers symbol libraries, isometrics, external references (XREFS), 3-D drawing, basic solid modeling, tables and customization techniques. Repeatable 1 time. <i>One hour lecture, two hours lab.</i>	<b>1.5 Units</b>	<b>DRFT 060</b> <b>Architectural Drafting I</b> <i>Prerequisites: DRFT 050 and DRFT 045. Course Advisories: SCC minimum English and math standards.</i> Practice in drawing a complete set of plans for a single family dwelling in accordance with local building regulations. Includes an introductory unit on heat loss computations. Recommended for non-majors and drafting majors. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>
<b>DRFT 046B</b> <b>Advanced CAD - Part 2</b> <i>Prerequisite: DRFT 046A. Course Advisories: SCC minimum English and math standards.</i> Designed to develop advanced proficiency in CAD. Covers symbol libraries, isometrics, external references (XREFS), 3-D drawing, basic solid modeling, tables and customization techniques. Repeatable: 1 time. <i>One hour lecture, two hours lab.</i>	<b>1.5 Units</b>	<b>DRFT 065</b> <b>Architectural Drafting II</b> <i>Prerequisites: DRFT 060 with a grade of 'C' or better; IT 151 (IT 151 may be taken concurrently). Course Advisories: SCC minimum English and math standards.</i> Introduction to the trade terms, detailing and basic construction practices related to light commercial design and delineation. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>

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<b>DRFT 070</b> <b>Technical Illustration and Design</b> <i>Prerequisite: DRFT 050; DRFT 045. Course Advisory: SCC minimum English and math standards.</i> Designed for advanced drafting students to develop the basic tools, skills and concepts required in the field of engineering illustration. Includes freehand sketching and pencil shading. CAD drawings include isometric, perspective assembly, photo-tracing and cut-away drawings. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>	<b>DRFT 092</b> <b>Special Problems</b> <i>Prerequisite: DRFT 050.</i> Individualized projects for advanced students who demonstrate competency to carry out individual work. Repeatable 3 times. <i>Three to nine hours weekly by arrangement.</i>	<b>1.0 to 3.0 Units</b>
<b>DRFT 075</b> <b>Electronic Drafting</b> <i>Prerequisites: DRFT 050 and DRFT 045. Course Advisory: SCC minimum English and math standards.</i> Designed for drafters to develop skill in reading and drawing plans related to electronics. Topics include, terminology, component identification, schematic symbols, cable drawings, electro-mechanical design, and basic printed circuit board design. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>	<b>DRFT 125</b> <b>Solid Modeling</b> <i>Course Advisory: SCC minimum English and math standards; DRFT 050 or knowledge of drafting concepts.</i> This course is designed to teach the basic concepts and skills necessary to create, view, and manipulate objects in three dimensional space using Solidworks software. Repeatable 1 time. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>
<b>DRFT 079</b> <b>Blueprint Reading</b> <i>Course Advisories: SCC minimum English and math standards.</i> Designed to provide understanding and interpretation of a variety of blueprints. Emphasizes the ability to recognize and identify modern industrial blueprints and architectural blueprints. Includes basic development of freehand sketching abilities. <i>Three hour lecture, one hour lab.</i>	<b>3.0 Units</b>	<b>DRFT 130</b> <b>Electronic Drafting With CAD</b> <i>Prerequisite: DRFT 075. Course Advisories: SCC minimum English and math standards.</i> The student will learn how to design complex circuit boards from schematic layout to artwork generation. Course requires completion of a complete set of drawings for a printed circuit board, including proper documentation, all based on industry standards. Through-hole and surface mount technology are studied. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>
<b>DRFT 080</b> <b>Civil Drafting I</b> <i>Prerequisites: DRAFT 50 and DRAFT 45. Course Advisory: SCC minimum English and math standards; IT 151 recommended.</i> Introductory course in civil drawing with emphasis on land division, breakdown of survey notes, office procedures and related math computations. Included is an introductory unit on modern CAD applications, as applied to preliminary and final maps. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>	<b>DRFT 135</b> <b>Structural and Detail Drafting</b> <i>Course Advisories: SCC minimum English and math standards.</i> Provides a basic introduction to structural detailing. Covers basic terminology, shapes, types of connections, types of views, scaling and proportion, bills of materials and lettering, plus some detailing problems. <i>Five hours lecture, two hours weekly by arrangement</i> (3 week course).	<b>1.0 Unit</b>
<b>DRFT 085</b> <b>Civil Drafting II</b> <i>Prerequisites: DRFT 080; IT 151. Course Advisory: SCC minimum English and math standards.</i> Designed for the advanced civil drafting student with emphasis on computer programs and experience compatible with the industry standards. Includes the study of plan and profile, cross-section and earth-work calculations. <i>Two hours lecture, four hours lab.</i>	<b>3.0 Units</b>	<b>DRFT 140</b> <b>Surveying</b> <i>Prerequisites: DRFT 080 and IT 151. Course Advisory: SCC minimum English and math standards.</i> Presents the fundamentals of plane surveying with practice in the field using tape, levels, transit and theodolite. <i>Two hours lecture and four hours lab.</i>	<b>3.0 Units</b>
		<b>DRFT 150</b> <b>Computer Graphics for Non-Drafters</b> <i>Course Advisory: SCC minimum English standard.</i> Provides the opportunity for the non-drafting major to explore the creation of graphic images using the PC as a tool. <i>One hour lecture, three hours lab</i> (8 week course).	<b>1.0 Unit</b>

## DRFT Special Topics

These courses, numbered 048, 098, or 148 depending upon their transferability, are courses of contemporary interest centered on changing knowledge and important issues in the field. Announcements of Special Topics courses appear in the Schedule of Classes.