

# DRAFTING

The Drafting program prepares students for challenging careers as drafters, designers, engineering assistants, 3-D modelers, estimators, and design/drafting checkers. Students may obtain an Associate in Science, Certificate of Achievement or preparation for transfer to a four year university in the fields of industrial design, manufacturing, or industrial technology. Specialized application of various software programs are taught using current technology and methods found in the Architectural, manufacturing, and design industries. There is a broad range of career opportunities such as Drafters, Designers, Illustrators, and Model Makers.

See also: Architecture (<http://catalog.vcccd.edu/ventura/programs-courses/architecture/>) and Construction Technology (<http://catalog.vcccd.edu/ventura/programs-courses/construction-technology/>)

## DRFT V02A Blueprint Reading: Manufacturing 3 Units

*Same-As:* WEL V02

*In-Class Hours:* 52.5 lecture

This course covers the interpretation of mechanical drawings typical of the metal working field; theory of common types of projections, dimensioning principles, machine standards, application of creative sketching and interpretation of blueprints.

**Grade Modes:** Letter Graded

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## DRFT V02B Blueprint Reading: Architectural/Construction 3 Units

*Formerly:* CT 20

*Same-As:* ARCH V11, CT V20

*In-Class Hours:* 52.5 lecture

This course provides experience in construction blueprint reading and plan review. Experiences will include the study of lines, symbols, notations and dimensions used on architectural drawings. Code interpretation and design compliance will be stressed.

**Grade Modes:** Letter Graded, Credit by exam, license etc.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

## DRFT V03 Drafting Fundamentals 3 Units

*Formerly:* DRFT 3

*In-Class Hours:* 35.0 lecture, 52.5 laboratory

This course covers the application of the fundamentals of industrial design drafting. Topics include the basic concepts of graphic presentation including design language/symbols, sketching, pictorial drawings, lettering, orthographic projection, working drawings, auxiliary views, dimensioning, geometric developments, duplication, interrelationships to the design process, the introduction to computer aided design, and industry trends and applications.

**Grade Modes:** Letter Graded

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

## DRFT V04 Measurements and Computations 3 Units

*Same-As:* MT V04

*In-Class Hours:* 52.5 lecture

This course is the occupational application of measurements and computations as used by technology students. Topics include geometric shape calculations, practical trigonometry, areas, volumes, ratio and proportion, units and conversions, decimals and fractions and applied algebra.

**Grade Modes:** Letter Graded

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## DRFT V05A Introduction to AutoCAD 2 Units

*Same-As:* ARCH V23

*In-Class Hours:* 17.5 lecture, 52.5 laboratory

*Advisories/Rec Prep:* DRFT V03 or 1 year of drafting experience

This course is an introduction to the use of AutoCAD including commands, editing, printing and plotting with emphasis on two-dimensional, and introduction to three-dimensional drawings. Industry trends, practices, and employee/employer expectations will be addressed.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

## DRFT V05B Advanced Operations of AutoCAD 2 Units

*Same-As:* ARCH V24

*In-Class Hours:* 17.5 lecture, 52.5 laboratory

*Prerequisites:* ARCH V23 or DRFT V05A

This course emphasizes AutoCAD instruction including three-dimensional drafting, customization of AutoCAD, advanced computer assisted drafting (CAD) methods, and an introduction to computer assisted machining (CAM). The course will address industry trends, practices, and employee/employer expectations.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

**DRFT V14 Technical Illustration 3 Units***Formerly:* DRFT V14A*In-Class Hours:* 35 lecture, 52.5 laboratory*Prerequisites:* DRFT V03 or 1 year of drafting experience

This course covers the application and preparation of technical illustrations to meet the standards of industry. Illustrations will be generated from prints, technical orders, and freehand sketches. This course introduces computer generated graphics and industry standard graphic design software for technical illustration. Pictorial, isometric and axonometric drawing presentation will be covered. Class assignments introduce students to the skills needed in this field, and provide hands-on opportunities for students to create and assess technical drawings.

**Grade Modes:** Letter Graded**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None**DRFT V18 Drafting Projects 3 Units***In-Class Hours:* 35.0 lecture, 52.5 laboratory*Prerequisites:* ARCH V23 or DRFT V05A

This course is an integration of previously acquired knowledge through assignment of projects in the areas of machine drafting, industrial design, 3D parametric modeling, graphic communication, or technical illustration. Students will design projects using computer assisted drafting (CAD) in the technical area of their choice.

**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**DRFT V41 Introduction to Industrial Design Graphics 3 Units***In-Class Hours:* 35.0 lecture, 52.5 laboratory

This course introduces the fundamentals of industrial design graphics through lecture and laboratory practice. Focus will be on the basic concepts of graphic presentation, including: design language/symbols; sketching; pictorial drawing; lettering; orthographic projection; working drawings; auxiliary views; dimensioning; geometric developments; dupli, interrelationships to the design process, an introduction to computer aided design (CAD); and, industry trends and applications.

**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None**DRFT V42 Design Drafting and 3D Solid Modeling 3 Units***In-Class Hours:* 35.0 lecture, 52.5 laboratory*Advisories/Rec Prep:* ARCH V23 or DRFT V05A; and DRFT V41

This course consists of the drawing of machine details and assemblies with attention to tolerances, notes, and dimensioning consistent with industrial practices. The course also covers the study of 3D CAD (computer assisted drafting) design concepts and applications. Students will develop skill in wire frame, surface, and solid model creation.

**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None**DRFT V43 Introduction to Solidworks 3 Units***In-Class Hours:* 35 lecture, 52.5 laboratory*Advisories/Rec Prep:* DRFT V42

This course provides a foundation in 3D parametric design using SolidWorks software and/or other industry-standard solid modeling software. The students will be introduced to the design concepts of parts and assemblies, parametric design, feature driven design, profiles and sketches, detail drawings, assembly drawings, and CAD (computer assisted drafting) standards used in industry. This course covers the development of 3D design models, 2D detail drawings and the creation and application of parametric assembly models.

**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None**DRFT V44 Rapid Design and Prototyping 3 Units***In-Class Hours:* 35 lecture, 52.5 laboratory*Advisories/Rec Prep:* DRFT V42 or DRFT V43

This course introduces the applications of technology and tools for creating three-dimensional physical models from 3D CAD (computer assisted drafting) files and other 3D data. Rapid prototyping and model making technologies are covered that accelerate the design process, allowing the student designers to shorten the design cycle time, update the product development process and improve communication between the design focus groups, engineering, marketing and manufacturing.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None

**DRFT V50 Flexible Manufacturing Applications: Computer Assisted Drafting CAD/Computer Assisted Machining CAM 3 Units**

*In-Class Hours:* 35 lecture, 52.5 laboratory

*Advisories/Rec Prep:* ARCH V23 or DRFT V05A

This course is an introduction to flexible manufacturing applications and CAD/CAM CNC programming. Topics include set up and operation of numerical control lathes, mills, electrical discharge machines and robotics principles.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

**DRFT V51 Design Animation and Modeling 2 Units**

*In-Class Hours:* 17.5 lecture, 52.5 laboratory

This course is an introduction to design animation and modeling. Students will receive hands-on training in hardware and software applications, including conceptual principles, and will learn modeling, rendering, and animation techniques. Tutorials will focus on the primary uses of animation in the professional workplace including architectural, mechanical, and character animation.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

- Drafting Technology: Industrial Design and Manufacturing Option, Associate in Science (<http://catalog.vcccd.edu/ventura/programs-courses/drafting/drafting-technology-industrial-design-manufacturing-option-as/>)
- Drafting Technology, Certificate of Achievement (<http://catalog.vcccd.edu/ventura/programs-courses/drafting/drafting-technology-coa/>)
- Drafting Technology: Industrial Design and Manufacturing Option, Certificate of Achievement (<http://catalog.vcccd.edu/ventura/programs-courses/drafting/drafting-technology-industrial-design-manufacturing-option-coa/>)