

Industrial design

**INDUSTRIAL DESIGN - IDSGN**

Open, Dean  
 Workforce Development and Engineering Technologies  
 Administration Building 121

**Program-level student learning outcomes**

Program learning outcomes are subject to change. The most current list of program learning outcomes for each program is published on the DVC website at [www.dvc.edu/slo](http://www.dvc.edu/slo).

**Associate in science degree**

Industrial design

**Students completing the program will be able to...**

- A. work within a team of diverse industry professionals to establish and meet design criteria.
- B. use advanced consumer research techniques to better understand human-centered design.
- C. design a product using two-dimensional and three-dimensional computer software.
- D. develop detailed technical drawings of a product.
- E. determine the most efficient and responsible manufacturing method for the product.
- F. prototype an object from a given technical drawing or three-dimensional CAD model.
- G. design and prototype mechanical parts in collaborating with engineers.
- H. use computer integrated manufacturing (CIM) and computer numerical control (CNC) software for automation of manufacturing.

**Associate in science - Industrial design**

The associate in science degree in industrial design is offered to provide students with academic and technical skills required for transfer to leading industrial design programs offered at four-year universities. The associate in science degree curriculum also provides students with a highly valued skillset needed to enter the modern workforce.

Graduates of the industrial design program can be employed in research and development, rapid prototyping and fabrication, product design, package design, soft goods design, and transportation design. Students in the program will learn how to design products for consumers and industry, as well as utilize advanced surface modeling software and milling programs used for computer numerical control (CNC) manufacturing equipment including 3D printers. Students completing this program will also be candidates for a broad range of manufacturing and corporate jobs requiring a combination of technical knowledge and communication skills needed to collaborate with marketing and engineering personnel and skilled workers in various trades and specialties.

Students who intend to transfer must consult with a program advisor or counselor to ensure that the requirements for transfer to four-year institutions of their choice are met. Students who intend to transfer are advised to select General Education option 2 (IGETC) or option 3 (CSU GE). Option 1 (DVC General Education) is not generally advised.

To earn an associate degree with a major in industrial design, students must complete each of the courses required for the major with a "C" grade or higher, maintain an overall GPA of 2.5 or higher and complete general education requirements as listed in the catalog. Certain courses may satisfy both major and general education requirements; however, the units are only counted once.

<i>required courses:</i>	<i>units</i>
ARCHI-135 Digital Tools for Design.....	3
ART-102 Introduction to Sculpture and Three-Dimensional Design .....	3
ART-105 Drawing I .....	3
ENGTC-119 Introduction to Technical Drawing.....	3
ENGTC-126 Computer Aided Design and Drafting-AutoCAD .....	3
ENGTC-129 Product Design I Using SolidWorks .....	3
IDSGN-105 Assembly and Fabrication Workshop .....	2
IDSGN-120 Introduction to Industrial and Product Design .....	3
IDSGN-121 Industrial and Product Design Foundations .....	3

<i>plus at least 3 units from:</i>	
ENGTC-165 Manufacturing Processes: Material Machining I.....	3
ENGTC-168 Introduction to Computer Numerical Control.....	3
IDSGN-107 Furniture Design Studio .....	2
IDSGN-220 Soft Goods Product Design Studio.....	4
IDSGN-221 Transportation Design Studio.....	4

**total minimum required units 29**

**Certificate of achievement**

Industrial design

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**Certificate of achievement - Industrial design**

The certificate of achievement in industrial design is intended for students who wish to enter the workforce directly in an industrial design field without transferring to a four-year university program. The certificate of achievement prepares students for a career as an industrial design intern, modeler or designer offering technical support, design, and modeling and fabrication assistance in an industrial design office.

Industrial design interns and technicians prepare models, presentation drawings, computer models and renderings for the design and production of everyday objects and tools, household products, soft goods, packaging and transportation design.

To earn a certificate of achievement in industrial design, students must complete each of the required courses required with a "C" grade or higher and maintain an overall GPA of 2.5 or higher.

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ARCHI-135 Digital Tools for Design .....	3
ART-102 Introduction to Sculpture and Three-Dimensional Design .....	3
ART-105 Drawing I.....	3
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ENGTC-126 Computer Aided Design and Drafting-AutoCAD .....	3
ENGTC-129 Product Design I Using SolidWorks .....	3
IDSGN-105 Assembly and Fabrication Workshop.....	2
IDSGN-120 Introduction to Industrial and Product Design.	3
IDSGN-121 Industrial and Product Design Foundations.....	3

*plus at least 3 units from:*

ENGTC-165 Manufacturing Processes: Material Machining I .....	3
ENGTC-168 Introduction to Computer Numerical Control .....	3
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IDSGN-220 Soft Goods Product Design Studio.....	4
IDSGN-221 Transportation Design Studio.....	4

**total minimum required units** **29**

**IDSGN-105 Assembly and Fabrication Workshop**

2 units SC

- 18 hours lecture/54 hours laboratory per term

This course presents methods of fabrication for projects in metal, wood, plastic and other materials and includes an introduction to shop safety, machine and tool operation, and small scale design and construction. CSU

**IDSGN-107 Furniture Design Studio**

2 units SC

- 18 hours lecture/54 hours laboratory per term
- Recommended: IDSGN-105 or equivalent

This course introduces furniture design, construction, and assembly. Topics include design development, working drawings and assembly drawings, digital and physical modeling, and final assembly of furniture. Detailing, fabrication, and utilization of computer numerical control (CNC) routers to build finished products will be emphasized. CSU

**IDSGN-120 Introduction to Industrial and Product Design**

3 units SC

- 36 hours lecture/72 hours laboratory per term

This introductory course will expose students to a broad spectrum of product design and general design principles and theories with a focus on visual theory, aesthetics, and historical context. Emphasis is placed on develop of critical thinking skills through the analysis of cultural and technological constructs that influence the creation of specific products. Design research methodology and creative problem solving skills will be emphasized and explored through the completion of studio projects. CSU, UC

**IDSGN-121 Industrial and Product Design Foundations**

3 units SC

- 36 hours lecture/72 hours laboratory per term
- Prerequisite: IDSGN-120 or equivalent

This project-based industrial design course introduces comprehensive design strategy and thought processes required to develop consumer products. Product research, design, and three-dimensional prototyping will be based on design briefs to develop problem-solving abilities. CSU

**IDSGN-220 Soft Goods Product Design Studio**

4 units SC

- 36 hours lecture/108 hours laboratory per term
- Prerequisite: IDSGN-120 or equivalent

This course explores materials and textiles required for the construction of wearable products and their impact on lifestyles and fashion. Students will design a variety of soft goods products including fashion, high-end accessories, clothing, shoes, and recreational equipment such as tents and sleeping bags. Creative problem-solving, research, design, and prototyping are emphasized. CSU

**IDSGN-221 Transportation Design Studio**

4 units SC

- 36 hours lecture/108 hours laboratory per term
- Prerequisite: IDSGN-121 or equivalent

This course presents the history of automotive styling trends and evolution, design philosophy, and cultural influences on the automobile. Emphasis is placed on accurate proportion based on the packaging of occupants and components, human factors, target market analysis, and brand identity. Final outcomes include sketches, renderings, package drawings, written reports, and scale models. CSU