



# Industrial Drawing

## Degrees

Industrial Drawing, Associate of Arts  
Industrial Technology, Industrial Drawing Option, Associate of  
Science

## Certificate

AutoCAD, Job Skills Certificate

## Industrial Technology: Industrial Drawing Option Associate of Science Degree

Students who complete the Industrial Technology degree with the Industrial Drawing option will acquire information, skills, and training in a variety of fields that will enable them to apply their knowledge in an array of situations, including engineering and manufacturing settings. Students will acquire the practical knowledge and skills to successfully enter industry employment or to advance within their organization. Career opportunities include architecture, engineering, industrial technology draftsman, CAD Technician, engineering technician, CAD Manager, and detailer.

### To Achieve the Associate in Science

Upon completion of the following courses with at least a 'C' grade in each course, the student will be awarded an Industrial Technology, Industrial Drawing Option Associate in Science degree.

### To Transfer Coursework

A minimum of 31 semester units in the major with a grade of 'C' or better while maintaining a minimum grade point average of at least 2.0 in all California State University transferable coursework.

### Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for industrial employment.
- demonstrate problem solving skills used in industrial design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university degree program in industrial technology.

### Career Opportunities:

Architectural and Civil Drafters, Electrical and Electronics Drafters, Engineering Technician, Mechanical Drafters

### Total Units: 34

#### Required Courses

Course #	Name	Units
INDR B12	Introduction to Drafting and CAD	2.0
INDR B20A	Computer Aided Drafting and Design (CAD)	3.0
INDR B20B	Computer Aided Drafting and Design (CAD)	3.0
INDR B40	Parametric Modeling Fundamentals	3.0
INDR B50	Process Piping	3.0
MATH B70	Intermediate Algebra	5.0
INDR B51	Electrical Design	3.0
INDR B52	Geographic Information Systems (GIS)	3.0
MFGT B1AB	Machine Tool Processes	3.0
	<i>or</i>	
WOOD B2	Furniture and Cabinetmaking	3.0
COMP B5	Introduction to Microsoft Office	3.0

#### Electives - Select at least 3 units from the following:

ENGR B24	Engineering Graphics and Descriptive Geometry	3.0
WELD B1A	Introduction to Oxygen Acetylene Welding and Cutting	2.0
WELD B1B	Introduction to the Welding Processes	2.0

## Industrial Drawing

### Associate of Arts Degree

This degree covers the principles of industrial drawing/CAD with the emphasis on using the AutoCAD software package from basic 2D principles through 3D solid modeling to obtain graphic solutions, design refinements, modifications and delineations. Software customization is also emphasized. Career opportunities include drafter, CAD operator, engineering tech, CAD manager, and architecture CAD operator.

#### Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for industrial employment.
- demonstrate problem solving skills used in industrial design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university degree program or for certification in the department programs.

#### Career Opportunities:

Architectural and Civil Drafters, Electrical and Electronics Drafters, Engineering Technician, Mechanical Drafters

#### Total Units: 20

##### Required Courses

Course #	Name	Units
INDR B12	Introduction to Drafting and CAD	2.0
INDR B20A	Computer Aided Drafting and Design (CAD)	3.0
INDR B50	Process Piping	3.0
INDR B51	Electrical Design	3.0
INDR B52	Geographic Information Systems (GIS)	3.0
INDR B40	Parametric Modeling Fundamentals	3.0

*Electives - Select 3 Units from the following:*

ARCH B16	Digital Tools for Graphics Communication	3.0
INDR B20B	Computer Aided Drafting and Design (CAD)	3.0

## Industrial Drawing, AutoCAD

### Job Skills Certificate

This certificate covers the principles of industrial drawing/CAD with the emphasis on using the AutoCAD software package from basic 2D principles through 3D solid modeling to obtain graphic solutions, design refinements, modifications and delineations. Software customization is also emphasized.

#### Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for industrial employment.
- demonstrate problem solving skills used in industrial design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university degree program or for certification in the department programs.

#### Career Opportunities:

Architectural and Civil Drafters, Electrical and Electronics Drafters, Mechanical Drafters

#### Total Units: 8

##### Required Courses

Course #	Name	Units
INDR B12	Introduction to Drafting and CAD I	2.0
NDR B20A	Computer Aided Drafting and Design (CAD)	3.0
INDR B20B	Computer Aided Drafting and Design (CAD)	3.0