ENGINEERING GRAPHICS & MECHANICAL DESIGN

Associate of Applied Science Degree
Computer Aided Design and Drafting/Mechanical Designer

The Computer Aided Design & Drafting program allows students to pursue an Associate of Applied Science Degree that provides an opportunity to learn the skills needed to become a CAD/Drafter in many of the important industries throughout Colorado and the country. This degree program will include skills ranging from 2D CAD drafting to 3D parametric modeling. Along the degree path, students will also have opportunities to augment their CAD skills with rapid prototyping, using a state of the art 3D printer and 3D scanner. Also in the degree plan, students will be trained in mechanical design and will develop an understanding of mechanical design with an eye towards manufacturability.

Program Admission Requirements

Meet minimum assessment scores or prerequisites required for general education courses in the program. Meet with Program Chair or Academic Advisor. Call to make an appointment.

Course	Title	Credits
First Semester		
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
MGD 101	Introduction to Computer Graphics	3
MAC 102	Print Reading for Machinists	3
MAT 108	Technical Mathematics	4
	Subtotal	16
Second Semester		
CAD 217	Rhino	3
CAD 240	Inventor I/Autodesk	3
CAD 224	Revit Architecture	3
CAD 255	SolidWorks/Mechanical	3
PHY 105	Conceptual Physics with Lab: GT-SC1	4
	Subtotal	16
Third Semester		
CAD 244	Advanced Inventor	3
CAD 259	Advanced Solidworks	3
MTE 230	Design for Manufacturability	3
CAD 262	3D Printing/Additive Manufacturing	3
COM 115	Public Speaking	3
	Subtotal	15
Fourth Semester		
CAD 264	3D Scanning and Modeling	4
Choose One Computer Aided Design and Drafting Course		6
CAD 280	Internship	
CAD 289	Capstone	
ENG 121	English Composition I: GT-CO1	3
	Subtotal	13
	Total Credits	60

Certificates

Center for Career & Technical Education
CCD.edu/EngineeringGraphics

Community College of Denver currently offers five certificates in engineering graphics and mechanical design.

- Inventor
- Solidworks
- Scanned Input 3D Modeling
- Computer Aided Design and Drafting Basic Certificate
- Computer Aided Design and Drafting Intermediate Certificate

Inventor

This program is not eligible for federal student aid.

This one-semester certificate provides currency and skill upgrade training for individuals working in the field or individuals in a related field wishing to obtain Inventor skills beyond the entry level. Drafting graduates whose skills are dated and wish to update should use one of these 6 credit hour certificates to gain those skills required in industry. Students with little or no background in AutoCAD should not select this program.

PROGRAM ADMISSION REQUIREMENTS
Meet with program chair or academic advisor. Call to make an appointment.

COURSE MAP

Code	Title	Credits
CAD 240	Inventor I/Autodesk	3
CAD 244	Advanced Inventor	3
Total Credits		6

Solidworks

This program is not eligible for federal student aid.

This one-semester certificate provides currency and skill upgrade training for individuals working in the field or individuals in a related field wishing to obtain Solidworks skills beyond the entry level. Drafting graduates whose skills are dated and wish to update should use one of these 6 credit hour certificates to gain those skills required in industry. Students with little or no background in AutoCAD should not select this program.

PROGRAM ADMISSION REQUIREMENTS
Meet with program chair or academic advisor. Call to make an appointment.

COURSE MAP

Code	Title	Credits
CAD 255	SolidWorks/Mechanical	3
CAD 259	Advanced Solidworks	3
Total Credits		6

Scanned Input 3D Modeling

This program is not eligible for federal student aid.

This 7 credit hour certificate covering both 3D printing and 3D scanning and modeling is designed for students who have completed the Associate of Applied Science in engineering graphics/mechanical designer or for CAD designers with established 3D parametric modeling skills. The first class, 3D Printing, will provide you with the ability to connect design and prototyping through the use of 3D CAD Modeling and 3D Printing. The second class, 3D Scanning and Modeling, exposes you to 3D scanning and modeling. Students will manipulate various types of 3D scanning technology and create CAD models using scanning software and other CAD programs

PROGRAM ADMISSION REQUIREMENTS
Meet with program chair or academic advisor. Call to make an appointment.

COURSE MAP

Code	Title	Credits
CAD 262	3D Printing/Additive Manufacturing	3
CAD 264	3D Scanning and Modeling	4
Total Credits		7

Computer Aided Design and Drafting/ Mechanical Designer Basic Certificate

This certificate provides currency and skill upgrade training for individuals working in the field, individuals in a related field wishing to obtain AutoCAD skills, and/or mechanical drafting graduates whose skills require updating. This program includes two introductory courses; students with little or no background in AutoCAD should select this program. This certificate is

fully transferable to the Computer Aided Design and Drafting Intermediate Certificate and the CADD A.A.S degree.

Please see an academic advisor about this pathway.

Program Admission Requirements

1. Meet minimum assessment score or prerequisites required for general education courses in the program.

2. Meet with program chair or academic advisor. Call to make an appointment.

Course	Title	Credits
First Semester		
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
MGD 101	Introduction to Computer Graphics	3
MAC 102	Print Reading for Machinists	3
MAT 108	Technical Mathematics	4
	Subtotal	16
Second Semester		
CAD 217	Rhino	3
CAD 240	Inventor I/Autodesk	3
CAD 224	Revit Architecture	3
CAD 255	SolidWorks/Mechanical	3
PHY 105	Conceptual Physics with Lab: GT-SC1	4
	Subtotal	16
	Total Credits	32

Computer Aided Design and Drafting/Mechanical designer Intermediate Certificate

This certificate builds on the Computer Aided Design and Drafting Basic Certificate.

It provides currency and skill training for individuals wanting to work in the field of Computer Aided Design and Drafting. This program includes skills needed to understand 3D parametric drafting using state of the art Computer Aided Drafting programs. This certificate is fully transferable to the CADD A.A.S Degree.

Please see an academic advisor about this pathway.

Program Admission Requirements

1. Meet minimum assessment scores or prerequisites required for general education courses in the program.

2. Meet with program chair or academic advisor. Call to make an appointment.

Course	Title	Credits
First Semester		
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
MGD 101	Introduction to Computer Graphics	3
MAC 102	Print Reading for Machinists	3
MAT 108	Technical Mathematics	4
	Subtotal	16
Second Semester		
CAD 217	Rhino	4
CAD 240	Inventor I/Autodesk	4
CAD 224	Revit Architecture	3
CAD 255	SolidWorks/Mechanical	4
PHY 105	Conceptual Physics with Lab: GT-SC1	4
	Subtotal	19
Third Semester		
CAD 244	Advanced Inventor	3
CAD 259	Advanced Solidworks	3
MTE 230	Design for Manufacturability	3
CAD 262	3D Printing/Additive Manufacturing	3
COM 115	Public Speaking	3
	Subtotal	15
	Total Credits	50