Academic Plan - Associate of Applied Science Engineering Graphics Technology - Mechanical Design

**Catalog Year: 2018/2019**

The Engineering Graphics Technologies degree allows the student to study mechanical technologies as their area of design study. This program also contains an in-depth emphasis in computer aided design (CAD) including two and three-dimensional design, visualization, customization, and programming. Mechanical design students will be introduced to parametric modeling design, geometric tolerancing (GD and T), materials, and manufacturing processes. Students will also create physical models with 3D plotting and laser cutting/engraving equipment. This program prepares the student for a variety of employment opportunities that include Draftsperson, Junior Designer, and Computer Aided Design Technician.

**Total Credits:61-64**

# A - General Education Courses

3 Credits, CIS 118 - Intro to PC Applications, available fall spring summer

3 Credits, COM 115 - Public Speaking\*, available fall spring summer

3 Credits, ENG 121 - English Composition GT-CO1 OR ENG 131 - Technical Writing GT-CO1\*, available fall spring summer

3-5 Credits, General Education Elective (See Notes for specific requirements), available fall spring summer

4 Credits, MAT 121 - College Algebra: GT-MA1 or Higher\*, available fall spring summer

# B - Major Courses

3 Credits, CAD 101 - Computer Aided Drafting/2D I, available fall spring summer

3 Credits, CAD 102 - Computer Aided Drafting/2D II, available fall spring summer

3 Credits, CAD 201 - Computer Aided Drafting / Custom, available fall spring

3 Credits, CAD 202 - Computer Aided Drafting / 3D, available fall spring

3 Credits, EGT 101 - Mechanical Design I, available fall spring

3 Credits, EGT 102 - Mechanical Design II, available fall spring

3 Credits, EGT 105 - Blueprint Reading, available fall

3 Credits, EGT 201 - Engineering Materials, available spring

3 Credits, EGT 205 - Geometric Dimension & Tolerance, available spring

3 Credits, EGT 210 - Mechanical Design III, available fall

3 Credits, EGT 289 - Capstone, available fall spring

3 Credits, Major Elective (See Notes for specific requirements), available fall spring summer

3 Credits, Major Elective (See Notes for specific requirements), available fall spring summer

3 Credits, MTE 120 - Manufacturing Processes (Online), available fall

3-4 Credits, Major Elective (See Notes for specific requirements), available fall spring summer

# Pre-Requisites, Co-Requisites, and Recommendations

CAD 101 - Computer Aided Drafting/2D I

Requirement: Students must have Windows File Management skills to create file folders, rename files, delete

CAD 102 - Computer Aided Drafting/2D II

Co-Requisite: CAD 101 - Computer Aided Drafting/2D I OR CAD 105 - AutoCAD for Interiors

Requirement: Students must have Windows File Management skills to create file folders, rename files, delete

CAD 201 - Computer Aided Drafting / Custom

Pre-Requisite: CAD 102 - Computer Aided Drafting/2D II

CAD 202 - Computer Aided Drafting / 3D

Pre-Requisite: CAD 102 - Computer Aided Drafting/2D II

CIS 118 - Intro to PC Applications

Requirement: Students must have Windows file management skills to create file folders, rename files, delete

EGT 101 - Mechanical Design I

C0-Requisite: CAD 101 - Computer Aided Drafting/2D I

EGT 102 - Mechanical Design II

Pre-Requisite: CAD 102 - Computer Aided Drafting/2D II

Pre-Requisite: EGT 101 - Mechanical Design I

EGT 210 - Mechanical Design III

Pre-Requisite: EGT 102 - Mechanical Design II AND CAD 202 - Computer Aided Drafting / 3D OR CAD 240 -

# Notes

EGT 101 is a CAD based course; students must have completed or co-enrolled in CAD 101 or CAD 102 to attend EGT

EGT 101, 102, 201, 205 and MTE 120 are transferrable to Metro State University and its Mechanical Engineering Technology program through an MOU. Please see department chair for details.

General Education Elective: Select one (1) course from the following: CHE 101, ECO 202, ENG 122, MAT 122, MAT 125, MAT 201, MAT 202, PHI 112 (all transferrable to Metro State University and its Mechanical Engineering Technology program through an MOU. Please see department chair for details.)

 Major Electives: Select three (3) courses from the following: CAD 240, CAD 255, CAD 262, CAD 264, EGT 280.

Any general election requirements may also be completed during the summer semesters.

Asterisked courses transfer to Metro State University and its Mechanical Engineering Technology program through an MOU. Please see department chair for details.

IMPORTANT: Subject to change without notice. Please consult the Engineering Graphics Technologies-Mechanical Design Concentration Department for specific course planning information and official guidance.

\*This course requires college level readiness as measured by Accuplacer, ACT, or SAT scores; approved high school course work that is less than five years old; or successful completion of appropriate college-readiness course.

AAA 101 – College 101: Student Experience is required for all new college students seeking degrees or transfer.

# Graduation Requirements

Refer to 18/19 catalog for specific requirements and important information about this degree.

Sudents should use DegreeCheck (available via myACC) to monitor progress towards completion. Students must apply for graduation; visit www.arapahoe.edu/departments-and-programs/graduation.

# RECOMMENDED COURSE SEQUENCE FULL-TIME TRACK

## Year 1: Fall

3 Credits, CAD 101 - Computer Aided Drafting/2D I

3 Credits, CAD 102 - Computer Aided Drafting/2D II

3 Credits, CIS 118 - Intro to PC Applications

3 Credits, EGT 101 - Mechanical Design I

3 Credits, EGT 105 - Blueprint Reading

## Year 1: Spring

3 Credits, CAD 201 - Computer Aided Drafting / Custom

3 Credits, CAD 202 - Computer Aided Drafting / 3D

3 Credits, EGT 102 - Mechanical Design II

3 Credits, ENG 121 - English Composition GT-CO1 OR ENG 131 - Technical Writing GT-CO1

3 Credits, Major Elective

~Recommended Restricted Elective(s)~

CAD 240 - Inventor I/Autodesk

## Year 2: Fall

3 Credits, COM 115 - Public Speaking

3 Credits, EGT 210 - Mechanical Design III

3 Credits, Major Elective

~Recommended Restricted Elective(s)~

CAD 262 - 3D Printing/Additive Manufacturing

4 Credits, MAT 121 - College Algebra: GT-MA1 or Higher

3 Credits, MTE 120 - Manufacturing Processes (Online)

## Year 2: Spring

3 Credits, EGT 201 - Engineering Materials

3 Credits, EGT 205 - Geometric Dimension & Tolerance

3 Credits, EGT 289 - Capstone

3-5 Credits, General Education Elective

~Recommended Elective(s)~

CHE 101 - Introduction to Chemistry I with Lab: GT-SC1\*

ECO 202 - Principles of Microeconomics: GT-SS1\*

ENG 122 - English Composition II: GT-CO2

MAT 122 - College Trigonometry: GT-MA1

MAT 125 - Survey of Calculus: GT-MA1

MAT 201 - Calculus I: GT-MA1

PHI 112 - Ethics: GT-AH3\*

3-4 Credits, Major Elective

~Recommended Restricted Elective(s)~

CAD 255 - SolidWorks/Mechanical

CAD 264 - 3D Scanning and Modeling

EGT 280 - Internship

# RECOMMENDED COURSE SEQUENCE PART-TIME TRACK

## Year 1: Fall

3 Credits, CAD 101 - Computer Aided Drafting/2D I

3 Credits, CAD 102 - Computer Aided Drafting/2D II

3 Credits, CIS 118 - Intro to PC Applications

## Year 1: Spring

3 Credits, CAD 201 - Computer Aided Drafting / Custom

3 Credits, CAD 202 - Computer Aided Drafting / 3D

3 Credits, ENG 121 - English Composition GT-CO1 OR ENG 131 - Technical Writing GT-CO1

## Year 1: Summer

4 Credits, MAT 121 - College Algebra: GT-MA1 or Higher

## Year 2: Fall

3 Credits, EGT 101 - Mechanical Design I

3 Credits, EGT 105 - Blueprint Reading

3 Credits, Major Elective

~Recommended Restricted Elective(s)~

CAD 262 - 3D Printing/Additive Manufacturing

## Year 2: Spring

3 Credits, EGT 102 - Mechanical Design II

3 Credits, EGT 201 - Engineering Materials

3 Credits, EGT 205 - Geometric Dimension & Tolerance

## Year 2: Summer

3 Credits, COM 115 - Public Speaking

## Year 3: Fall

3 Credits, EGT 210 - Mechanical Design III

3-5 Credits, General Education Elective

~Recommended Elective(s)~

CHE 101 - Introduction to Chemistry I with Lab: GT-SC1\*

ECO 202 - Principles of Microeconomics: GT-SS1\*

ENG 122 - English Composition II: GT-CO2

MAT 122 - College Trigonometry: GT-MA1

MAT 125 - Survey of Calculus: GT-MA1

MAT 201 - Calculus I: GT-MA1

PHI 112 - Ethics: GT-AH3\*

3 Credits, MTE 120 - Manufacturing Processes (Online)

## Year 3: Spring

3 Credits, EGT 289 - Capstone

3 Credits, Major Elective

~Recommended Restricted Elective(s)~

CAD 240 - Inventor I/Autodesk

3-4 Credits, Major Elective

~Recommended Restricted Elective(s)~

CAD 255 - SolidWorks/Mechanical

CAD 264 - 3D Scanning and Modeling

EGT 280 - Internship