Program Description
The Engineering Drafting & Design program provides students with the entry-level skills and theoretical knowledge to engineer and design products utilizing the latest technology in CAD/CAM software. Graduates from this program are prepared to enter the industry as mechanical designers, drafters, CAD/CAM technicians, quality inspectors, and tool designers. The course of study includes: print reading; machine tool applications; measurement and materials; job planning and layout; CAD/CAM software; solid modeling; finite element analysis; transmission of power; and 3D prototyping.

Students spend a significant amount of time in the machine shop and metrology lab gaining hands-on manufacturing skills to help them understand the realities of 21st century manufacturing. Students obtain Certified Solidworks Associate (CSWA) certification as part of their course of study. Arts & Sciences curriculum supports the technical coursework by enhancing the students’ communication, mathematics, and critical thinking skills.

Dunwoody College of Technology: a non-profit, private technical college since 1914.

Credential Earned
AAS Degree

Classes Offered
Day

Length of Program
2 years (4 semesters)

Available Starts
Fall Semester only; for Fall only starts, students can take Arts & Sciences courses in Spring

Further Study
Bachelor’s Completion Degree in Industrial Engineering Technology

Degree Requirements
MACH110 Machine Tool Fundamentals Lab
MACH1120 Machine Tool Fundamentals Theory
MDES1110 Engineering Drawings with SolidWorks
MDES1210 Process & Tool Design Lab
MDES1230 Geometric Dimensioning & Tolerances
MDES2130 Advanced SolidWorks
MDES2110 Product Design Lab
MDES2120 Product Design Theory
MDES2230 Statics & Strength of Materials
MDES1220 Creo Parametric
MDES2210 Transmission of Power Lab
MDES2220 Transmission of Power Theory
MATH1050 Algebra, Trigonometry & Geometry Communications Elective
MATH1350 Concepts of Calculus
Social Sciences Elective
Humanities Elective
Natural Sciences Elective
Diversity Elective

Program Description

How to Apply

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<th>Common Job Titles</th>
<th>Recent Employers</th>
<th>Salary Data</th>
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<tr>
<td>Design Drafter</td>
<td>Stratasys</td>
<td>$57,220*</td>
<td>100%**</td>
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<tr>
<td>Engineering Designer</td>
<td>Graco</td>
<td>Annual Average Salary</td>
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<tr>
<td>Tool Designer</td>
<td>BTD Manufacturing</td>
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<td>Engineering Technician</td>
<td>MTS Systems Corporation</td>
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<tr>
<td>Mechanical Designer</td>
<td>Tooling Science, Inc.</td>
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**Data reflects placement for AY2015-16 graduates indicating employment in their field of study within 6 months following graduation.
Full data calculations are available for review during College open hours Monday through Friday 8 a.m. to 4 p.m. CT at Career Services or contact careerservices@dunwoody.edu.
AY2017-18 Revised: 4.4.17
Course Descriptions

MACH1110 Machine Tool Fundamentals Lab, 5 cr.
Manufacturing of parts through layout and bench work, includes the use of band saws, drill presses, surface grinders, manual lathes and vertical mills. Basic principles in metal-cutting technology includes threading, tapers, knurling, boring, radii cutting and milling procedures such as squaring stock, the use of rotary table and the many other milling and turning operations.

MACH1120 Machine Tool Fundamentals Theory, 4 cr.
Identification, recognition and calculations associated with basic principles in metal-cutting technology including machine feeds and speeds, threading, tapers, knurling, boring, radii cutting and milling and turning procedures.

MDES1110 Engineering Drawings with SolidWorks, 4 cr.
Creation of 3D solid models, assemblies and related engineering documentation using SolidWorks. Blueprint reading and application of ASME/ANSI standards to CAD drawings.

MDES1210 Process & Tool Design Lab, 5 cr.
Distinguish modern manufacturing processes such as molding, welding, heat treating, and machining; identify typical materials, tools, and required equipment. Analysis of process-specific capabilities such as tolerance, surface finish, cost effectiveness, and geometry restrictions.

MDES1230 Geometric Dimensioning & Tolerances, 4 cr.
Principles of geometric dimensioning and tolerancing in the context of engineering and manufacturing. Application of principles using coordinate measurement machines.

MDES2130 Advanced SolidWorks, 4 cr.
Simulation (Finite Element Analysis) and advanced surface modeling techniques. Culminates in testing for CSWA certification.

MDES2110 Product Design Lab, 5 cr.
Introduction to product design methods and concepts; converting product ideas and requirements into working designs. Design balance and relation to concepts such as aesthetics, performance, ergonomics and manufacturability.

MDES2120 Product Design Theory, 4 cr.
Integrate methods and concepts of product design to actual designs of simple products. Determine design parameters, develop product opinions, narrow the focus for balance, and document the final design.

MDES2230 Statics & Strength of Materials, 4 cr.

MDES1220 Creo Parametric, 4 cr.
Create solid models, assemblies and engineering documentation using Creo Parametric. Apply fits and geometric dimensioning and tolerancing to models and drawings.

MDES2210 Transmission of Power Lab, 5 cr.
Design and draw projects with applications of gears, chains, bearings, cams, motors, clutches, cylinders, fluid and mechanical power transmission, robots and automation. Design resolution incorporating; project management, project selection, product design, calculations, design analysis, documentation, technical communications, quality and presentation.

MDES2220 Transmission of Power Theory, 4 cr.
Identification, recognition and calculations associated with components of machines; mechanical and fluid power transmission, motors, clutches, gears, chains, bearings, cams, robots and automation. Design resolution incorporating; project management, project selection, product design, calculations, design analysis, documentation, technical communications, quality and presentation.

MATH1050 Algebra, Trigonometry & Geometry, 3 cr.
Principles of algebra, geometry and trigonometry used in the context of a technical setting. Problem-solving strategies are developed and applied to technology.

MATH1350 Concepts of Calculus, 3 cr.
Systems and graphs of linear and quadratic equations, functions, limits, differentiation, implicit differentiation, related rates, integration; applications of the derivative and integral.