**MACHINE TOOL TECHNOLOGY**

### Program Description
The Machine Tool Technology program provides students with entry-level skills and theoretical knowledge to program and operate all of the latest machine tools utilized in modern manufacturing facilities. Graduates from this program are prepared to enter the industry as machine operators, production machinists, CAD/CAM technicians, CNC programmers, and tool designers.

The course of study includes: manual milling and turning; measurement and materials; job planning and layout; CAD/CAM software; CNC milling and turning; mold and die making; and EDM technology. The program's curriculum is closely aligned with standards set forth by National Institute of Metalworking Skills (NIMS).

Due to high demand, most machine tool students can find full-time employment in the field long before graduation, and many will be working in a shop within just the first year of the program. 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.

### Degree Requirements

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>MACH110</td>
<td>Machine Tool Fundamentals Lab</td>
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<tr>
<td>MACH1120</td>
<td>Machine Tool Fundamentals Theory</td>
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<tr>
<td>MDES1110</td>
<td>Engineering Drawings with SolidWorks</td>
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<tr>
<td>MACH1210</td>
<td>Advanced Machining Lab</td>
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<td>MACH1220</td>
<td>Advanced Machining Theory</td>
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<tr>
<td>MDES1230</td>
<td>Geometric Dimensioning &amp; Tolerances</td>
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<td>MACH2210</td>
<td>CNC Mill, EDM &amp; Die Making Lab</td>
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<td>MACH2230</td>
<td>Die Design Theory</td>
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<tr>
<td>MACH2140</td>
<td>MasterCAM I</td>
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<tr>
<td>MACH2110</td>
<td>CNC Lathe, Mill &amp; Mold Making Lab</td>
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<tr>
<td>MACH2120</td>
<td>CNC Lathe &amp; Mill Theory</td>
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<td>MACH2130</td>
<td>Mold Design Theory</td>
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<tr>
<td>MACH2240</td>
<td>MasterCAM II</td>
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<tr>
<td>MATH1050</td>
<td>Algebra, Trigonometry &amp; Geometry</td>
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<td></td>
<td>Communications Elective</td>
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<td>MATH1200</td>
<td>Machine Math</td>
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<td>Social Sciences Elective</td>
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<td>Diversity Elective</td>
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### Common Job Titles
- Machinist
- CNC Programmer
- Tool Maker
- Machine Operator
- Manufacturing Technician

### Recent Employers
- MTS Systems Corporation
- Kurt Manufacturing
- Graco
- BTD Manufacturing, Inc.
- Mendell

### Salary Data

<table>
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<tr>
<th>Common Job Title</th>
<th>Recent Employer</th>
<th>Annual Average Salary</th>
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<tr>
<td>Machinist</td>
<td>MTS Systems Corporation</td>
<td>$57,240*</td>
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<td>Tool Maker</td>
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<td>Manufacturing Technician</td>
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</table>

### Placement Rate
100% **

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**Data reflects placement for AY2016-17 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.

AY2018-19 Revised: 6.18.18
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.

MACH1210 Advanced Machining Lab, 5 cr.
Advanced manufacturing of parts through layout, bench work and job planning. Advanced manual turning and milling and an introduction to CNC M & G codes. CNC portion includes manual programming via machine control and software simulation.

MACH1220 Advanced Machining Theory, 4 cr.
Identification, recognition and calculations associated with advanced milling and turning operations, inspection of finished parts and an introduction to the G & M codes used in CNC programming. CNC portion includes manual programming in notepad and Immersive software simulation.

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.

MACH2110 CNC Lathe, Mill & Mold Making Lab, 5 cr.
Advanced manufacturing processes using CNC lathes, CNC mill and EDM, design and build of an injection mold, along with hand and inspection tool techniques.

MACH2120 CNC Lathe & Mill Theory, 2 cr.
Advanced CNC mill programming and introduction to CNC lathe programming. G & M codes, canned cycles, jigs, fixtures and work holding methods.

MACH2240 MasterCAM II, 4 cr.
Advanced 3D design, surface and solid model creation using MasterCAM. Tool path creation and posting for both 2D and 3D geometry including advanced surface and solid models. Lathe part creation and programming in 2D.

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.

MACH2140 MasterCAM I, 4 cr.
2D and 3D geometry and surface model creation using MasterCAM software, an associative computer-aided manufacturing system for milling and turning. M and G code programs will be created, debugged and simulated cutter paths run for simple part geometries.

MACH2110 CNC Lathe, Mill & Mold Making Lab, 5 cr.
Advanced manufacturing processes using CNC lathes, CNC mill and EDM, design and build of an injection mold, along with hand and inspection tool techniques.

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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.

MACH2220 CNC Mill & EDM Theory, 2 cr.
Advanced work holding principles, 4 axis CNC programming, axis definitions, wire EDM programming and power definitions.

MACH2230 Die Design Theory, 2 cr.
Die design fundamentals and components including bend tolerances, cutting clearances, tonnage calculations, forming, and fits and clearances for dies.