Catalog Description:

The Manufacturing Technology program provides training in a wide variety of skill areas of product manufacturing and services. The four degree options in the program are Automated Manufacturing Systems, Drafting/Design, Manufacturing Technology and Manufacturing Engineering Technology. Automated Manufacturing is designed to prepare the student for careers in computer-aided manufacturing, robotics and numerical control. Drafting/Design prepares the student for careers in the drafting and computer-aided design areas. Manufacturing Technology provides the student with a broad background in the areas of machining, drafting and fluid systems so as to prepare them for entry-level positions as machine operators, machine maintenance personnel and quality control personnel. The Manufacturing Engineering Technology degree prepares students for entry-level engineering technician positions in manufacturing. The Manufacturing Technology degree requires 65 credits in program requirements, program electives and general education in the courses listed below.

Program Requirements ......................................................29
Manuf 1101  Industrial Design/CAD ........................................3
Manuf 1104  Technical Mechanics .......................................2
Manuf 1110  Metrology .....................................................3
Manuf 1151  Machine Shop I .............................................3
Manuf 1153*  Advanced Machine Processes .........................3
Manuf 1180  Quality Control ............................................3
Manuf 2251*  Computer Numerical Control (CNC) ...............3
Elect 1100  Electricity and Electronics Fundamentals ..........3
Elmec 1141  Hydraulics and Pneumatics ...............................3
Weld 1100  Welding I ....................................................3

Program Electives ............................................................16
Select 16 credits from the courses below. (In addition to the courses listed above.)
Manuf 1121  Physical Metallurgy .........................................3
Manuf 2201*  Geometric Dimensioning and Tolerancing .......3
Manuf 2202*  Solid Modeling and Design ..............................3
Elmec 1171  Introduction to Robotic Technology .................3
Weld 1112*  Oxy-Fuel, Welding, Plasma Cutting and Brazing ..................................................3
Weld 1122*  Shielded Metal Arc (SMAW) .........................3
Weld 1132*  Gas Metal Arc (MIG) ....................................3
Weld 1142*  Gas Tungsten Arc (TIG) ................................3

* - course has a prerequisite

General Education ..........................................................20
Each candidate for an Associate in Applied Science (A.A.S.) degree shall satisfactorily complete a minimum of 18 credits in General Education. (In addition to the courses listed below.)

Suggested Course Sequence
(Full-Time Enrollment)

Please note: A student’s readiness to perform college-level coursework is based on the student’s placement test and/or ACT scores. Below 1000 level coursework may be required prior to the student taking courses in the suggested sequences.

First Semester (15 to 17 credits)

- Manuf 1110 (3)
- Manuf 1151 (3)
- Manuf 1180 (3)
- Elmec 1141 (3)
- General Education (3 to 5)

Second Semester (15 to 18 credits)

- Manuf 1110 (3)
- Weld 1100 (3)
- Elect1100 (3)
- General Education (3 to 5)
- General Education (3 to 5)

Third Semester (8 to 14 credits)

- Manuf 1153 (3)
- Manuf 1104 (2)
- Elective (3 to 9)

Fourth Semester (9 to 17 credits)

- Manuf 2251 (3)
- Elective (3 to 9)
- General Education (3 to 5)

For more information:
If you are considering this program as an area of study, please contact the Business and Applied Technology Division office at 630-942-2592.

Program web site:
http://www.cod.edu/programs/manufacturing/
For the Manufacturing Technology degree, students are required to take 20 credits in General Education.

Under the specified General Education headings below, the following courses are required:

**Communication**: 6 credits  
**Written**: (3 credits) English 1101 or 1105  
**Oral**: (3 credits) Speech 1100, 1120 or 1150

**Physical and Life Sciences**: 3 to 5 credits  
At least one course with a laboratory component

**Mathematics**: 3 to 5 credits  
Select a minimum of 3 credits (1000 level or above).  
Select Mathematics 1102, 1104 or 1120 only where required in the degree program. Only one from the following three courses may count toward overall degree requirement credit: Mathematics 1635, Psychology 2280 or Sociology 2205. Only one of the following courses may count toward overall degree credit: Mathematics 1428 or Mathematics 1431.

**Humanities and Fine Arts**: 3 credits

**Social and Behavioral Sciences**: 3 credits  
Complete at least 2 credits from the list of courses in the Global/Multicultural Studies or Contemporary Life Skills Category.  
*(Manufacturing Technology 1180 fulfills this requirement)*

<table>
<thead>
<tr>
<th>TOTAL CREDITS FOR AAS DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
</tr>
</tbody>
</table>
Career Information MANUF.AAS

**Job Title(s):** Manufacturing Production Technicians  
Research and Development Machinist

For salary and wage information, please visit: [www.onetonline.org](http://www.onetonline.org)

If you would like information regarding internships, resume development, interviewing and job search skills, please contact the Career Services Center

Phone: 630-942-2230  
[www.cod.edu/careerservices](http://www.cod.edu/careerservices)  
Twitter: @codcareercenter

**Related Occupations:**
- Electronics Engineering Technicians  
- Electrical Engineering Technicians  
- Robotics Technicians  
- Mechanical Engineering Technicians  
- Electrical and Electronics Repairers, Commercial and Industrial Equipment  
- Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic  
- Industrial Machinery Mechanics
Catalog Description:

The Automated Manufacturing Systems degree requires 66 credits in program requirements, program electives and general education in the courses listed below.

**Program Requirements** ..........................................................40
Manuf 1101  Industrial Design/CAD ......................................3
Manuf 1104  Technical Mechanics .....................................2
Manuf 1110  Metrology .......................................................3
Manuf 1121  Physical Metallurgy ........................................3
Manuf 1151  Machine Shop .................................................3
Manuf 1180  Quality Control .................................................3
Manuf 2202* Solid Modeling and Design ..........................3
Manuf 2251* Computer Numerical Control (CNC) ..........3
Manuf 2253* Computer-Aided Manufacturing (CAM) ..........3
Manuf 2280  Industrial Safety ............................................2
Elect 1100  Electricity and Electronics Fundamentals ......3
Elmec 1141  Hydraulics and Pneumatics ........................3
Elmec 1171  Introduction to Robotic Technology ...........3
Elmec 1190  Introduction to Programmable Logic Controllers .................................................3

**Program Electives** ...................................................................6
Select six credits from the courses below. (In addition to the courses listed above.)

Manuf 1153* Advanced Machine Processes ..................3
Manuf 1160* Technical Static and Strength of Material .....4
Manuf 2201* Geometric Dimensioning and Tolerancing .....3
Manuf 2203* Manufacturing Processes and Design ..........3
Manuf 2206* Mechanical Computer-Aided Drafting/Design ..................................................3
Manuf 2207* Tool Design ....................................................3
Manuf 2271* Robotic Application .....................................3

* - course has a prerequisite

**General Education** .................................................................20
Each candidate for an Associate in Applied Science (A.A.S.) degree shall satisfactorily complete a minimum of 18 credits in General Education. (In addition to the courses listed below.)

For the Automated Manufacturing Systems degree, students are required to take 20 credits in General Education.

Under the specified General Education headings below, the following courses are required:

**Communication**: 6 credits
**Written**: (3 credits) English 1101 or 1105
**Oral**: (3 credits) Speech 1100, 1120 or 1150

Suggested Course Sequence

(Full-Time Enrollment)

*Please note: A student’s readiness to perform college-level coursework is based on the student’s placement test and/or ACT scores. Below 1000 level coursework may be required prior to the student taking courses in the suggested sequences.*

**First Semester (15 to 17 credits)**
- Manuf 1101 (3)
- Manuf 1121 (3)
- Manuf 1151 (3)
- Elmec 1141 (3)
- General Education (3 to 5)

**Second Semester (14 to 16 credits)**
- Manuf 1180 (3)
- Manuf 1104 (2)
- Manuf 2202 (3)
- Elect 1100 (3)
- General Education (3 to 5)

**Summer Term (5 to 7 credits)**
- Manuf 2280 (2)
- General Education (3 to 5)

**Third Semester (18 to 20 credits)**
- Manuf 1110 (3)
- Manuf 2251 (3)
- Elmec 1171 (3)
- General Education (3 to 5)
- Program Elective (3)

**Fourth Semester (18 to 22 credits)**
- Manuf 2253 (3)
- Elmec 1190 (3)
- General Education (3 to 5)
- General Education (3 to 5)
- Program Elective (3)

For more information:
If you are considering this program as an area of study, please contact the Business and Applied Technology Division office at 630-942-2592.

Program web site:
http://www.cod.edu/programs/manufacturing/

MANUF.AAS.AUTO
Physical and Life Sciences: 3 to 5 credits
At least one course with a laboratory component

Mathematics: 3 to 5 credits
Select a minimum of 3 credits (1000 level or above).
Select Mathematics 1102, 1104 or 1120 only where required in the degree program. Only one from the following three courses may count toward overall degree requirement credit: Mathematics 1635, Psychology 2280 or Sociology 2205. Only one of the following courses may count toward overall degree credit: Mathematics 1428 or Mathematics 1431.

Humanities and Fine Arts: 3 credits

Social and Behavioral Sciences: 3 credits

Complete at least 2 credits from the list of courses in the Global/Multicultural Studies or Contemporary Life Skills Category.
*(Manufacturing Technology 1180 or 2280 fulfills this requirement)*

**TOTAL CREDITS FOR AAS DEGREE**
66
Career Information MANUF.AAS.AUTO

**Job Title(s):** Computer-Controlled Machine Tool Operators, Metal and Plastic Brake Press Operator; Computer Numerical Control Lathe Operator (CNC Lathe Operator); Computer Numerical Control Machine Operator (CNC Machine Operator); Computer Numerical Control Machinist (CNC Machinist); Computer Numerical Control Mill Operator (CNC Mill Operator); Computer Numerical Control Operator (CNC Operator); Computer Numerical Control Set-Up and Operator (CNC Set-Up and Operator); Machine Operator; Machine Set-Up, Operator; Machinist

For salary and wage information, please visit: [www.onetonline.org](http://www.onetonline.org)

If you would like information regarding internships, resume development, interviewing and job search skills, please contact the Career Services Center

Phone: 630-942-2230
[www.cod.edu/careerservices](http://www.cod.edu/careerservices) Twitter: @codcareercenter

**Related Occupations:**

- Engine and Other Machine Assemblers
- Rolling Machine Setters, Operators, and Tenders, Metal and Plastic Machinists
- Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic
- Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic
- Cutting and Slicing Machine Setters, Operators, and Tenders
Catalog Description:

The Manufacturing Technology Drafting/Design degree requires 65 credits in program requirements, program electives and general education in the courses listed below.

Program Requirements ...........................................32
Manuf 1101  Industrial Design/CAD ..............................3
Manuf 1104  Technical Mechanics ...............................2
Manuf 1121  Physical Metallurgy .................................3
Manuf 1151  Machine Shop I ......................................3
Manuf 1180  Quality Control .......................................3
Manuf 2202* Solid Modeling and Design ........................3
Manuf 2203* Manufacturing Processes and Design ..........3
Manuf 2206* Mechanical Computer-Aided Drafting/Design ...3
Manuf 2207* Tool Design .........................................3
Manuf 2208* Mechanical Design Portfolio ....................3
Elect 1100  Electricity and Electronics Fundamentals ......3

Program Electives ....................................................13
Select 13 credits from the courses listed below. (In addition to the courses listed above.)
Manuf 1110  Metrology .............................................3
Manuf 2201* Geometric Dimensioning and Tolerancing ....3
Manuf 2251* Computer Numerical Control (CNC) ..........3
Manuf 2280  Industrial Safety .....................................2
Manuf 2281  Cost Analysis .........................................2
Elmec 1141  Hydraulics and Pneumatics .........................3
Elmec 1171  Introduction to Robotic Technology ............3
Elmec 1190  Introduction to Programmable Logic Controllers ........................................3
Weld 1100  Welding I .............................................3

* - course has a prerequisite

General Education .....................................................20
Each candidate for an Associate in Applied Science (A.A.S.) degree shall satisfactorily complete a minimum of 18 credits in General Education. (In addition to the courses listed below.)

For the Drafting/Design degree, students are required to take 20 credits in General Education.

Under the specified General Education headings below, the following courses are required:

Communication: 6 credits
Written: (3 credits) English 1101 or 1105
Oral: (3 credits) Speech 1100, 1120 or 1150

Suggested Course Sequence
(Full-Time Enrollment)

Please note: A student’s readiness to perform college-level coursework is based on the student’s placement test and/or ACT scores. Below 1000 level coursework may be required prior to the student taking courses in the suggested sequences.

First Semester (15 to 17 credits)
• Manuf 1101 (3)
• Manuf 1151 (3)
• Manuf 1180 (3)
• Elect1100 (3)
• General Education (3 to 5)

Second Semester (14 to 18 credits)
• Manuf 2201 (3)
• Manuf 2202 (3)
• Manuf 1104 (2)
• General Education (3 to 5)
• General Education (3 to 5)

Summer Term (6 to 10 credits)
• General Education (3 to 5)
• Elective (3 to 5)

Third Semester (12 to 16 credits)
• Manuf 2203 (3)
• Manuf 2206 (3)
• Elective (3 to 5)
• General Education (3 to 5)

Fourth Semester (15 to 19 credits)
• Manuf 1121 (3)
• Manuf 2207 (3)
• Manuf 2208 (3)
• Elective (3 to 5)
• General Education (3 to 5)

For more information:
If you are considering this program as an area of study, please contact the Business and Applied Technology Division office at 630-942-2592.

Program web site:
http://www.cod.edu/programs/manufacturing/
**Physical and Life Sciences:** 3 to 5 credits  
At least one course with a laboratory component

**Mathematics:** 3 to 5 credits  
Select a minimum of 3 credits (1000 level or above).  
Select Mathematics 1102, 1104 or 1120 only where required in the degree program. Only one from the following three courses may count toward overall degree requirement credit: Mathematics 1635, Psychology 2280 or Sociology 2205. Only one of the following courses may count toward overall degree credit: Mathematics 1428 or Mathematics 1431.

**Humanities and Fine Arts:** 3 credits

**Social and Behavioral Sciences:** 3 credits

Complete at least 2 credits from the list of courses in the Global/Multicultural Studies or Contemporary Life Skills Category.  
*(Manufacturing Technology 1180 fulfills this requirement)*

<table>
<thead>
<tr>
<th>TOTAL CREDITS FOR AAS DEGREE</th>
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<td>65</td>
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</table>

**TOTAL CREDITS FOR AAS DEGREE**

65
Career Information MANUF.AAS.DRAFT

Job Title(s): Mechanical Drafters
Mechanical Drafter, Designer, Drafter, Design Drafter, Mechanical Designer, CAD Designer
(Computer Aided Design Designer), CAD Operator (Computer Aided Design Operator), CAD/CAM
Specialist (Computer Aided Design/Computer Aided Manufacturing Specialist), Project Designer,
Installation Drafter

For salary and wage information, please visit: www.onetonline.org

If you would like information regarding internships, resume development, interviewing and job
search skills, please contact the Career Services Center
Phone: 630-942-2230
www.cod.edu/careerservices Twitter: @codcareercenter

Related Occupations:
Architectural Drafters Mapping Technicians
Civil Drafters Electrical Drafters
Electronics Engineering Technicians Commercial and Industrial Designers
Electronic Drafters Civil Engineering Technicians
Catalog Description:

The Manufacturing Engineering Technology degree requires 65 credits in program requirements and general education in the courses listed below.

<table>
<thead>
<tr>
<th>Program Requirements</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Manuf 1101</td>
<td>3</td>
</tr>
<tr>
<td>Manuf 1121</td>
<td>3</td>
</tr>
<tr>
<td>Manuf 1151</td>
<td>3</td>
</tr>
<tr>
<td>Manuf 1160*</td>
<td>4</td>
</tr>
<tr>
<td>Manuf 1180</td>
<td>3</td>
</tr>
<tr>
<td>Manuf 2202*</td>
<td>3</td>
</tr>
<tr>
<td>Manuf 2203*</td>
<td>3</td>
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<tr>
<td>Manuf 2251*</td>
<td>3</td>
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<tr>
<td>Manuf 2253*</td>
<td>3</td>
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<tr>
<td>Manuf 2281</td>
<td>3</td>
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<tr>
<td>Elect 1100</td>
<td>3</td>
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<tr>
<td>Elmec 1141</td>
<td>3</td>
</tr>
<tr>
<td>Math 1431*</td>
<td>5</td>
</tr>
<tr>
<td>Math 1432*</td>
<td>3</td>
</tr>
<tr>
<td>Math 1635*</td>
<td>4</td>
</tr>
<tr>
<td>Physi 1201*</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>* - course has a prerequisite</td>
</tr>
</tbody>
</table>

General Education

Each candidate for an Associate in Applied Science (A.A.S.) degree shall satisfactorily complete a minimum of 18 credits in General Education. (In addition to the courses listed above.)

For the Manufacturing Engineering Technology degree, some General Education courses are already listed under program requirements. Therefore, students only need 12 credits besides those listed under program requirements.

Under the specified General Education headings below, the following courses are required for the Manufacturing Engineering Technology degree:

<table>
<thead>
<tr>
<th>Communication</th>
<th>6 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>(3 credits) English 1101 or 1105</td>
</tr>
<tr>
<td>Oral</td>
<td>(3 credits) Speech 1100, 1120 or 1150</td>
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</table>

<table>
<thead>
<tr>
<th>Physical and Life Sciences</th>
<th>3 to 5 credits</th>
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<tbody>
<tr>
<td>At least one course with a laboratory component</td>
<td></td>
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<tr>
<td>(Physics 1201 in program requirements fulfills this requirement)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mathematics</th>
<th>3 to 5 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a minimum of 3 credits</td>
<td>(1000 level or above)</td>
</tr>
</tbody>
</table>

Suggested Course Sequence

(Full-Time Enrollment)

Please note: A student’s readiness to perform college-level coursework is based on the student’s placement test and/or ACT scores. Below 1000 level coursework may be required prior to the student taking courses in the suggested sequences.

First Semester (14 to 16 credits)
- Manuf 1101 (3)
- Manuf 1151 (3)
- Math 1431 (5)
- General Education (3 to 5)

Second Semester (15 to 17 credits)
- Math 1432 (3)
- Elect 1100 (3)
- Manuf 1121 (3)
- Manuf 2202 (3)
- General Education (3 to 5)

Summer Term (4 credits)
- Math 1635 (4)

Third Semester (17 to 19 credits)
- Manuf 1180 (3)
- Manuf 2203 (3)
- Manuf 2251 (3)
- Physi 1201 (5)
- General Education (3 to 5)

Fourth Semester (16 to 18 credits)
- Manuf 1160 (4)
- Manuf 2253 (3)
- Manuf 2281 (3)
- Elmec 1141 (3)
- General Education (3 to 5)

For more information:
If you are considering this program as an area of study, please contact the Business and Applied Technology Division office at 630-942-2592.

Program web site:
http://www.cod.edu/programs/manufacturing/
Select Mathematics 1102, 1104 or 1120 only where required in the degree program. Only one from the following three courses may count toward overall degree requirement credit: Mathematics 1635, Psychology 2280 or Sociology 2205. Only one of the following courses may count toward overall degree credit: Mathematics 1428 or Mathematics 1431.

(Mathematics 1431 or 1432 in program requirements fulfills this requirement)

**Humanities and Fine Arts:** 3 credits

**Social and Behavioral Sciences:** 3 credits

Complete at least 2 credits from the list of courses in the Global/Multicultural Studies or Contemporary Life Skills Category.

(Manufacturing 1180 in program requirements fulfills this requirement)

<table>
<thead>
<tr>
<th>TOTAL CREDITS FOR AAS DEGREE</th>
</tr>
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<tbody>
<tr>
<td>65</td>
</tr>
</tbody>
</table>
Career Information MANUF.AAS.MET

**Job Title(s):** Manufacturing Engineering Technologists

For salary and wage information, please visit: [www.onetonline.org](http://www.onetonline.org)

If you would like information regarding internships, resume development, interviewing and job search skills, please contact the Career Services Center

Phone: 630-942-2230  
[www.cod.edu/careerservices](http://www.cod.edu/careerservices)  
Twitter: @codcareercenter

**Related Occupations:**

- Logistics Engineers
- Industrial Engineers
- Mechanical Engineers
- Manufacturing Engineers
- Electronics Engineers, Except Computer
- Robotics Technicians
- Electronics Engineering Technologists
- Aerospace Engineering and Operations Technicians