# Machine Trades

**Associate in Applied Science (AAS)**

Prepare for a job as a machinist, millwright, and tool and die maker, or another occupation related to manufacturing through LCC's Machine Trades program. Graduates may work as advanced apprentice machinists, machine operators, or programmers.

For a roadmap that identifies the preferred sequencing of courses and other specific recommendations from faculty, please see the corresponding program map(s):

- Machine Trades Associate in Applied Science (AAS) (lowercolumbia.edu/program-maps/trades/AAS-Machine-Trades)

# Degree Requirements

**Total credits required to earn this degree:** 107 with a cumulative grade point average (GPA) of at least 2.0 in the program requirements

LCC students must meet distribution requirements for bachelor degrees, associate degrees, and specific certificates. See Diversity and Distribution Lists (lowercolumbia.edu/publications/catalog/distribution-lists/) for more information.

# General Education Requirements

- **Communications:**

  5 credits - ENGL 110 Industrial Communications ***OR***
  ENGL& 101 English Composition I
- **Quantitative Skills:**

  5 credits – MATH 106 Industrial Mathematics ***OR***
  MATH& 107 Math in Society ***OR***
  higher except for MATH& 131
- **Human Relations / Social Science:**

  5 credits – BUS 144 Management of Human Relations is recommended.
- **Humanities/ Natural Sciences:**

  5 credits – DHET 240 Fluid Power/Electrical Theory & Design ***OR***
  TECH 100 Advanced Principles of Technology ***OR***
  MFG 130 Materials Science ***OR***
  choose from the Distribution List.
- **Diversity:**

  5 credits – From the *Diversity Course List*. Courses that meet this requirement may also be used toward other graduation requirements. Diversity courses are listed in the quarterly schedule and identified by 'DIV' attached to the course title.

# Program Requirements

| Course Code | Course Title | Number of Credits |
|---|---|---|
| BLPT 150 | Machinists Blueprint Reading | 5 |

| Course Code | Course Title | Number of Credits |
|---|---|---|
| HLTH 105 | First-Aid, CPR and Bloodborne Pathogens | 1 |
| MASP 111 | Machine Shop I | 10 |
| MASP 112 | Machine Shop II | 10 |
| MASP 113 | Machine Shop III | 10 |
| MASP 204 | CNC Machining Center Fundamentals | 3 |
| MASP 205 | CNC Turning Center Fundamentals | 3 |
| MASP 221 | CNC Milling | 10 |
| MASP 222 | CNC Turning | 10 |
| MASP 223 | Advanced CNC Processes | 10 |
| MFG 105 | Industrial Safety | 3 |
| MFG 115 | Manufacturing Processes | 5 |
| MFG 230 | Computer Integrated Manufacturing | 4 |
| COLL 289 | Employment Portfolio Seminar | 1 |
| MASP 288 | Cooperative Work Experience | 2 |

3 credits of WELD 105 may be substituted for COLL 289/MASP 288 with program advisor permission.

# Program Outcomes

Students completing this program should acquire the following skills and abilities:

- Communicate professionally in writing and speaking as appropriate to an industrial technology work environment (GS).
- Apply objective, valid methods of inquiry and problem solving to draw rational, ethical, and coherent conclusions (GS).
- Apply mathematical information to perform tasks in industrial technology (GS).
- Interact effectively with individuals and groups (GS).
- Apply industry standard safety and hazardous material handling guidelines.
- Display work appropriate behavior including positive attitude, timeliness and teamwork.
- Apply knowledge of computer programs to create professional, academic, or business documents following current industry standards.
- Demonstrate competencies required for entry level machinist.
- Interpret industrial blueprints to accurately inspect machined parts.
- Demonstrate competency in documenting and communicating work performed using trade specific language.

- Demonstrate competency in set up and operation of manual machine tools to manufacture parts per specification.
- Program computer numerical control (CNC) mill and CNC lathe to manufacture parts per specification.
- Apply CAD/CAM software to design and manufacture parts per specification.

# Notes

**Revised December 2023 (effective Summer 2024)**

Program planning is based on information available at the time of preparation. It is the student's responsibility to meet with their LCC advisor and with an advisor at the college to which they plan to transfer for specific requirements. Consult the LCC catalog for LCC graduation requirements.