Certificate of Proficiency (COP)

Computer Numerical Control

The Machine Trades certificate program is another route to employment as a machinist, millwright, tool and die maker, or other occupation related to manufacturing. 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):

• **Computer Numerical Control - COP (lowercolumbia.edu/program-maps/trades/COP-Computer-Numerical-Control)**

Certificate Requirements

• **Communications:**
  5 credits - ENGL 110 Industrial Communications is recommended.
• **Quantitative Skills:**
  5 credits – MATH 106 Industrial Mathematics.
• **Human Relations / Social Science:**
  5 credits – BUS 144 Management of Human Relations is recommended.

Program Requirements

BLPT 150	Machinists Blueprint Reading	5
HLTH 105	First Aid, CPR and Bloodborne Pathogens	1
MASP 107 *AND/OR* MASP 111	Machining for Related Occupations *AND/OR* Machine Shop I *(2-10 cr variable) for a combined total of 10 credits*	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
MFG 105	Industrial Safety	3
MFG 115	Manufacturing Processes	5

MFG 230	Computer Integrated Manufacturing	4

Diversity and Distribution Lists (lowercolumbia.edu/publications/catalog/distribution-lists) are available in the Lower Columbia College Catalog located at **lowercolumbia.edu/catalog.**

Total credits required to earn this certificate: 69.

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, timelines 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.
- Demonstrate competency in documenting and communicating work performed using trade specific language.
- Demonstrate competency in inspecting machined parts.
- Program computer numerical control (CNC) mill and CNC lathe to manufacture parts per specification.
- Demonstrate competency in set up and operation of a computer numerical control (CNC) mill and CNC lathe to manufacture parts per specification.
- Demonstrate competency in set up and operation of manual machine tools to manufacture parts per specification.
- Apply CAD/CAM software to design and manufacture parts per specification.

Revised March 2021 (Effective Fall 2021)

Notes:

Program planning is based on information available at the time of preparation. It is the student's responsibility to meet with their LCC advisor. Consult the LCC catalog for LCC graduation requirements.