PATHWAY: Manufacturing Technology: Welding
Visit your College Advisor, ccc.edu, or your college’s Transfer Center for more information.

This is an example course sequence for students interested in earning a degree in Manufacturing Technology. It does not represent a contract, nor does it guarantee course availability. If this pathway is followed as outlined, you will earn a Basic Certificate (BC) in Quality Assurance (QA), a Basic Certificate in Welding (W), and an Associate in Applied Science (AAS) in Manufacturing Technology. One course will satisfy the Human Diversity (HD) requirement, and is labeled with an (HD) in the sequence below.

The AAS degree program in Manufacturing Technology offers the technologies required for maintenance mechanics in the manufacturing or service industries and covers theory and practical projects. The program is appropriate for career changers, high school graduates, general education diploma holders, and machining workers with a need to enhance their careers.

Welding is a challenging and rewarding career that combines the manual techniques of traditional welding processes with new digital skills used in robotic welding. With continual advances in welding technology, students in this program will study manufacturing materials and processes, including basic metallurgy and electricity, as well as print reading and fundamental quality assurance concepts. The welding processes that students will master include Gas Metal Arc Welding (GMAW or “MIG” welding), Shielded Metal Arc Welding (SMAW or “stick”), and Gas Tungsten Arc Welding (GTAW or “TIG”). Automated welding is taught using a FANUC robot and controller with a Lincoln Electric welder. Basic Certificate completers will be able to gain jobs as welders and entry level jobs in automated (or robotic) welding.

Choose your courses with your College Advisor.

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SEMESTER-BY-SEMESTER PROGRAM PLAN FOR FULL-TIME STUDENTS
All plans can be modified to fit the needs of part-time students by adding more semesters.

1. Manufacturing Technology 151 and 152 are Required Program Cores for the BC (W), but are Program Electives for the AAS.
## ADVANCED MANUFACTURING

### PROGRAM ELECTIVES (AAS)

- Manufacturing 151—Introduction to Welding (3)
- Manufacturing 112—Machining Process II (3)
- Manufacturing 123—CNC Milling Operations and Programming (3)
- Manufacturing 137—CNC Turning Operations and Programming (3)
- Manufacturing 201—Supervised Work-based Learning (3)
- Manufacturing 253—Pneumatics (3)
- Manufacturing 255—Industrial Hydraulics (3)
- Manufacturing 291—Programmable Logic Controllers (3)
- Manufacturing 295—Electrical Motor Controls (3)
- Manufacturing 297—Advanced Mechanical Systems (3)

- Manufacturing 145—Computer Integrated Manufacturing (CIM) (3)
- Manufacturing 144—Wire Electrical Discharge Machining (3)
- Manufacturing 146—Team Dynamics in Manufacturing (3)
- Logistics/Transportation/Distribution 152—Introduction to Business Logistics (3)
- Computer Information Systems 120—Introduction to Microcomputers (3)
- Engineering 111—Introduction to the Engineering Profession (2)
- Engineering 131—Engineering Graphics and Introduction to Design (3)
- Engineering 132—Descriptive Geometry (3)
- Physics 131—Mechanics and Power (3)

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*D = DEGREE // AC = ADVANCED CERTIFICATE // BC = BASIC CERTIFICATE*