

MACHINIST/CNC OPERATOR

Computer-Integrated Machining (Diploma) (D50210)

The Computer-Integrated Machining curriculum prepares students with the analytical, creative and innovative skills necessary to take a production idea from an initial concept through design, development and production, resulting in a finished product.

Coursework may include manual machining, computer applications, engineering design, computer-aided drafting (CAD), computer-aided machining (CAM), blueprint interpretation, advanced computerized numeric control (CNC) equipment, basic and advanced machining operations, precision measurement and high-speed multi-axis machining.

Graduates should qualify for employment as machining technicians in high-tech manufacturing, rapid-prototyping and rapid-manufacturing industries, specialty machine shops, fabrication industries, and high-tech or emerging industries such as aerospace, aviation, medical, and renewable energy, and to sit for machining certification examinations.

COURSE REQUIREMENTS

Richmond Community College provides day and evening course sequences for selected programs to enable students to better plan what courses to take to reach their educational goals. However, given the continued increase in the use of technology in instruction and increasing student demand for distance learning courses, the College may offer hybrid, online, web-based and information highway courses in place of traditional courses in any course sequence that is listed. Therefore, students should be aware of this possibility and prepare themselves to successfully function in a hybrid, online, web-based, or information highway course.

| | | | | Class | Lab | Work/ Clinical | Credit | | |
|---|-----|--------------------------------------|--|-------|-----|-------------------|--------|--|--|
| A. General Education Courses | | | | | | | | | |
| 1. Required Courses | | | | | | | | | |
| ENG | 102 | Applied Communications II | | 3 | 0 | 0 | 3 | | |
| | | or | | | | | | | |
| ENG | 111 | Writing and Inquiry | | 3 | 0 | 0 | 3 | | |
| | | Social/Behavioral Sciences Elective* | | 3 | 0 | 0 | 3 | | |
| B. Major Courses | | | | | | | | | |
| 1. Core Courses | | | | | | | | | |
| <i>To receive a degree, diploma or certificate from RCC, a student must have a grade of "C" or better in all core courses for the program of study.</i> | | | | | | | | | |
| BPR | 111 | Print Reading | | 1 | 2 | 0 | 2 | | |
| MAC | 111 | Machining Technology I | | 2 | 12 | 0 | 6 | | |
| MAC | 112 | Machining Technology II | | 2 | 12 | 0 | 6 | | |
| MAC | 122 | CNC Turning | | 1 | 3 | 0 | 2 | | |
| 2. Other Major Courses | | | | | | | | | |
| BPR | 121 | Blueprint Reading: Mechanical | | 1 | 2 | 0 | 2 | | |
| MAC | 113 | Machining Technology III | | 2 | 12 | 0 | 6 | | |
| MAC | 124 | CNC Milling | | 1 | 3 | 0 | 2 | | |
| MAC | 151 | Machining Calculations | | 1 | 2 | 0 | 2 | | |
| MEC | 142 | Physical Metallurgy | | 1 | 2 | 0 | 2 | | |

| | | | | | | | |
|----------------------------------|-----|-----------------------------|---|---|----|---|--|
| | or | | | | | | |
| WBL | 111 | Work-Based Learning I | 0 | 0 | 10 | 1 | |
| | and | | | | | | |
| WBL | 115 | Work-Based Learning Seminar | 1 | 0 | 0 | 1 | |
| C. Other Required Courses | | | | | | | |
| ACA | 122 | College Transfer Success | 0 | 2 | 0 | 1 | |

Total Credit Hours **37**

*Approved Electives are listed on the page before Course Descriptions.

**SEMESTER SCHEDULE
COMPUTER-INTEGRATED MACHINING (DIPLOMA)
(EVENING)**

| | | | Class | Lab | Work/ Clinical | Credit |
|-------------------------------------|-----|--------------------------------------|-------|-----|-------------------|--------|
| First Year – Fall Semester | | | | | | |
| ACA | 122 | College Transfer Success | 0 | 2 | 0 | 1 |
| BPR | 111 | Print Reading | 1 | 2 | 0 | 2 |
| MAC | 111 | Machining Technology I | 2 | 12 | 0 | 6 |
| | | | — | — | — | — |
| | | | 3 | 16 | 0 | 9 |
| First Year – Spring Semester | | | | | | |
| ENG | 102 | Applied Communications II | 3 | 0 | 0 | 3 |
| | or | | | | | |
| ENG | 111 | Writing and Inquiry | 3 | 0 | 0 | 3 |
| MAC | 122 | CNC Turning | 1 | 3 | 0 | 2 |
| MAC | 124 | CNC Milling | 1 | 3 | 0 | 2 |
| | | Social/Behavioral Sciences Elective* | 3 | 0 | 0 | 3 |
| | | | — | — | — | — |
| | | | 8 | 6 | 0 | 10 |
| First Year – Summer Semester | | | | | | |
| MAC | 151 | Machining Calculations | 1 | 2 | 0 | 2 |
| MEC | 142 | Physical Metallurgy | 1 | 2 | 0 | 2 |
| | or | | | | | |
| WBL | 111 | Work-Based Learning I | 0 | 0 | 10 | 1 |
| | and | | | | | |
| WBL | 115 | Work-Based Learning Seminar | 1 | 0 | 0 | 1 |
| | | | — | — | — | — |
| | | | 2 | 2-4 | 0-10 | 4 |
| Second Year – Fall Semester | | | | | | |
| BPR | 121 | Blueprint Reading: Mechanical | 1 | 2 | 0 | 2 |
| MAC | 112 | Machining Technology II | 2 | 12 | 0 | 6 |
| | | | — | — | — | — |
| | | | 3 | 14 | 0 | 8 |

Second Year – Spring Semester

| | | | | | |
|---------|--------------------------|-------|-------|-------|-------|
| MAC 113 | Machining Technology III | 2 | 12 | 0 | 6 |
| | | <hr/> | <hr/> | <hr/> | <hr/> |
| | | 2 | 12 | 0 | 6 |

Total Credit Hours **37**

*Approved Electives are listed on the page before Course Descriptions.

**COMPUTER-INTEGRATED MACHINING TECHNOLOGY (CERTIFICATE) (C50210)
(EVENING)
COURSE REQUIREMENTS**

| | | | Class | Lab | Work/ Clinical | Credit |
|---------|---------------------------|--|--------------|------------|---------------------------|---------------|
| BPR 111 | Print Reading | | 1 | 2 | 0 | 2 |
| MAC 111 | Machining Technology I | | 2 | 12 | 0 | 6 |
| MAC 122 | CNC Turning | | 1 | 3 | 0 | 2 |
| MAC 124 | CNC Milling | | 1 | 3 | 0 | 2 |
| | Total Credit Hours | | | | | 12 |

**CIM: MACHINING TECHNOLOGY (CERTIFICATE) (C50210M)
COURSE REQUIREMENTS**

| | | | Class | Lab | Work/ Clinical | Credit |
|---------|---------------------------|--|--------------|------------|---------------------------|---------------|
| MAC 111 | Machining Technology I | | 2 | 12 | 0 | 6 |
| MAC 112 | Machining Technology II | | 2 | 12 | 0 | 6 |
| MAC 113 | Machining Technology III | | 2 | 12 | 0 | 6 |
| | Total Credit Hours | | | | | 18 |