



Program Planning Guide

Computer-Integrated Machining Certificate (C50210)

Program Length: 2 semesters

Program Sites: Lee Main Campus - Day Program

Career Pathway Options: Associate in Applied Science Degree in Computer Integrated Machining; Diploma in Computer Integrated Machining; Certificate in Computer-Integrated Machining

| Suggested Course Schedule | | Class | Lab | Work | Credits | Notes: |
|--|-----------------------------|----------|-----------|----------|-----------|--------|
| 1st Semester (fall) | | | | | | |
| BPR 111 | Print Reading | 1 | 2 | 0 | 2 | |
| MAC 111 | Machining Technology I | 2 | 12 | 0 | 6 | |
| MAC 171 | Measure/Material & Safety | 0 | 2 | 0 | 1 | |
| MAT 110 | Math Measurement & Literacy | 2 | 2 | 0 | 3 | |
| MEC 142 | Physical Metallurgy | 1 | 2 | 0 | 2 | |
| Total Semester Hours | | 6 | 20 | 0 | 14 | |
| 2nd Semester (spring) | | | | | | |
| BPR 121 | Blueprint Reading-Mech | 1 | 2 | 0 | 2 | |
| MAC 124 | CNC Milling | 1 | 3 | 0 | 2 | |
| Total Semester Hours | | 2 | 5 | 0 | 4 | |
| Total Semester Hours Credit Required for Graduation: 18 | | | | | | |



Course Descriptions

BPR 111 Print Reading

This course introduces the basic principles of print reading. Topics include line types, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic prints and visualize the features of a part or system.

BPR 121 Blueprint Reading: Mechanical

Prerequisite: BPR 111 or MAC 131

This course covers the interpretation of intermediate blueprints. Topics include tolerancing, auxiliary views, sectional views, and assembly drawings. Upon completion, students should be able to read and interpret a mechanical working drawing

MAC 111 Machining Technology I

This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, drilling machines, saws, milling machines, bench grinders, and layout instruments. Upon completion, students should be able to safely perform the basic operations of measuring, layout, drilling, sawing, turning, and milling.

MAC 124 CNC Milling

This course introduces the manual programming, setup, and operation of CNC machining centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC machining centers.

MAC 171 Measure/Material & Safety

This course introduces precision measuring instruments, process control and adjustment, inspection, material handling and workplace safety. Topics include properly identifying and handling various measurement instruments and materials, process control, adjustment and improvement, personal protective equipment (PPE) and OSHA safety regulations. Upon completion, students should be able to safely demonstrate effective measurement techniques, identify and handle various materials, and explain safe industry practices.

MAT 110 Math Measurement & Literacy

Corequisite: MAT 010

Local RISE corequisites: MAT 010; Local RISE Prerequisites: Take one group: 1) MAT 003 P1; 2) DMA 010, DMA 020, DMA 030; 3) MAT 060; 4) DMA 025

This course provides an activity-based approach that develops measurement skills and mathematical literacy using technology to solve problems for non-math intensive programs. Topics include unit conversions and estimation within a variety of measurement systems; ratio and proportion; basic geometric concepts; financial literacy; and statistics including measures of central tendency, dispersion, and charting of data. Upon completion, students should be able to demonstrate the use of mathematics and technology to solve practical problems, and to analyze and communicate results.

MEC 142 Physical Metallurgy

This course covers the heat treating of metals. Emphasis is placed on the effects of hardening, tempering, and annealing on the structure and physical properties of metals. Upon completion, students should be able to heat treat materials.