

Computer Numerical Control Machine Operations

Certificate

Program Coordinator: Johnnie Keene • MEC 104 • 276-739-2455

Length: Three semesters (one and one-half year)

Purpose: A machinist uses manual and automated machine tools to make or modify parts by using machine tools to cut away excess material. In addition to metal, the parts may be made of many other kinds of materials, such as plastic or wood products. To be able to machine very complex parts using lathes, milling machines, and grinders requires a great deal of skill. The goal of these cutting operations is to produce a part that conforms to a set of specifications, or tolerances, usually in the form of engineering drawings commonly known as blueprints.

Occupational Objectives: Machine Tool Operator and CNC Programmer or Operator

Admissions Requirements: A student eligible for admission to the College can normally be considered for admission to the Computer Numerical Control Machining curriculum.

Program Requirements: The Computer Numerical Control Machining Program is designed to prepare students to work as machine tool operators and CNC programmers or operators. The student will be given training in the operation of metal lathes, milling machines, various types of grinders, drilling machine and measuring instruments. Also the student will develop skills in blueprint reading, industrial safety, and drafting.

Students successfully completing the three-semester sequence in this program receive a certificate in computer Numerical Control Machining.

Course Number	Course Title	Lecture Hours	Lab Hours	Credits
First Semester (Fall)				
DRF 161	Blueprint Reading I	1	3	2
SDV 101	Orientation to College Success	1	0	1
MAC 151	Machine Tool Maintenance	1	3	2
MAC 161	Machine Shop Practices I	2	3	3
MAC 162	Machine Shop Practices II	2	3	3
MAC 116	Machinist Handbook	2	0	2
MAC 121	Numerical Control I	1	2	2
Total		10	14	15
Second Semester (Fall)				
ENG 111 or ENG 115	College Composition I or Technical Writing	3	0	3
MAC 146	Metals/Heat Treatment	1	3	2
MAC 163	Machine Shop Practices III	2	3	3
MAC 164	Machine Shop Practices IV	2	3	3
MAC 122	Numerical Control II	2	3	3
Total		10	12	14
Third Semester (Spring)				
MAC 111	Machine Trade Theory and Computation I	3	0	3
MAC 123	Numerical Control III	2	3	3
MAC 126	Introductory CNC Programming	2	3	3
MAC 127	Advanced CNC Programming	3	0	3
EEE	General Education Elective	3	0	3
Total		13	6	15
Total Minimum Credits Required for Certificate				44

Students are urged to follow the [recommended pathway](#) for this diploma when choosing electives.

Additional approved humanities and social science electives are listed at <http://www.vhcc.edu/GenEdCore>.