

Technical and Vocational Programs

D 50 21 0 Computer Integrated Machining - Diploma

C 50 21 0 M Manufacturing Technologist - Certificate

C 50 21 0 I Conventional Machinist - Certificate

C 50 21 0 II CNC Technician - Certificate

(This program is located at COA - Currituck)

CONCENTRATION OVERVIEW

The Computer Integrated Machining curriculum is designed to develop skills in the theory and safe use of hand tools, power machinery, computerized equipment, and sophisticated precision inspection instruments. Students learn to interpret blueprints, setup manual and CNC machines, perform basic and advanced machining operations, and make decisions to ensure that work quality is maintained.

Upon completion of this concentration, graduates will be able to qualify for employment opportunities for machining technicians exist in manufacturing industries, public institutions, governmental agencies, and in a wide range of specialty machining job shops.



Student Learning Outcomes - Upon completion of the program, students will:

1. Demonstrate the safe use of hand tools, power machinery, and other equipment and tools relevant to metals manufacturing by producing assigned projects that require specific machining skills.
2. Make decisions that demonstrate knowledge of precision measuring tools by performing quality control inspection procedures on projects.
3. Program computer numerical machine tools to produce accurate and functional machine parts.
4. Demonstrate how to visualize and interpret technical drawings to include line types, orthographic projections, dimensions, and notes.

Partnership: N/A

***This program offers a [Career and College Promise pathway \(CCP\) D50210H](#). Courses within the pathway are highlighted in yellow.**

D 50 21 0 Computer Integrated Machining – Diploma

(Offered only at COA - Currituck)

First Year Fall Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 111 Machining Technology I	Pre-Requisites: None Co-Requisites: MAC 171,172	2	12		14	6
MAC 131 Blueprint Reading/ Mach I	Pre-Requisites: None	1	2		3	2
MAC 121 Intro to CNC	Pre-Requisites: None	2			2	2
MAC 171 Measure/Material & Safety	Pre-Requisites: None		2		2	1
MAC 172 Job Plan, Bench & Layout	Pre-Requisites: None		2		2	1
MEC 161 Manufacturing Process	Pre-Requisites: None	3			3	3
Select one of the following: COM 101 Workplace Communication COM 110 Intro to Communication COM 120 Intro to Interpersonal Communication COM 231 Public Speaking	Pre-Requisites for COM 231: ENG 111	3			3	3
TOTAL SEMESTER HOURS		11	18		29	18
First Year Spring Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 112 Machining Technology II	Pre-Requisites: MAC 111, 131	2	12		14	6
MAC 122 CNC Turning (2nd 8 wks)	Pre-Requisites: MAC 121, 131	1	3		4	2
MAC 124 CNC Milling (1st 8 wks)	Pre-Requisites: MAC 121, 131	1	3		4	2
MAC 132 Blueprint Reading/ Mach II	Pre-Requisites: MAC 131	1	2		3	2
MEC 110 Intro to CAD/CAM	Pre-Requisites: MAC 121, 131	1	2		3	2
Select one of the following: MAT 110 Math Measurement & Literacy MAT 143 Quantitative Lit MAT 171 Precalculus Algebra	Pre-Requisites for MAT 110: None Pre-Requisites for MAT 143: MAT 025 Pre-Requisites for MAT 171: MAT 035	2	2-3		4-5	3-4
TOTAL SEMESTER HOURS		8	24-25		32-33	17-18

First Year Summer Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 113 Machining Technology III	Pre-Requisites: MAC 112, MEC 110	2	12		14	6
Select one of the following: WBL 110 (World of Work) or WBL 111 (Work-Based Learning I)		1-0		0-10	1-10	1
TOTAL SEMESTER HOURS		2-3	12	0-10	15-24	7
TOTAL SEMESTER HOURS REQUIRED FOR DIPLOMA						42-43

C 50 21 0 M Manufacturing Technologist - Certificate

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First Year Fall Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 131 Blueprint Reading/ Mach I	Pre-Requisites: None	1	2		3	2
MAC 121 Intro to CNC	Pre-Requisites: None	2			2	2
MAC 171 Measure/Material & Safety	Pre-Requisites: None		2		2	1
MEC 161 Manufacturing Process	Pre-Requisites: None	3			3	3
TOTAL SEMESTER HOURS		6	4		10	8
First Year Spring Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 132 Blueprint Reading/ Mach II	Pre-Requisites: MAC 131	1	2		3	2
MEC 110 Intro to CAD/CAM	Pre-Requisites: MAC 121, 131	1	2		3	2
TOTAL SEMESTER HOURS		2	4		6	4
TOTAL SEMESTER HOURS REQUIRED FOR CERTIFICATE						12

C 50 21 0 I Conventional Machinist - Certificate

(Offered only at COA - Currituck)

First Year Fall Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 111 Machining Technology I	Pre-Requisites: None Co-Requisites: MAC 171, 172	2	12		14	6
MAC 131 Blueprint Reading/ Mach I	Pre-Requisites: None	1	2		3	2
MAC 171 Measure/Material & Safety	Pre-Requisites: None		2		2	1
MAC 172 Job Plan, Bench & Layout	Pre-Requisites: None		2		2	1
MEC 161 Manufacturing Process		3			3	3
TOTAL SEMESTER HOURS		6	18		24	13
TOTAL SEMESTER HOURS REQUIRED FOR CERTIFICATE						13

C 50 21 0 II CNC Technician - Certificate

(Offered only at COA - Currituck)

First Year Fall Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 131 Blueprint Reading/ Mach I	Pre-Requisites: None	1	2		3	2
MAC 121 Intro to CNC	Pre-Requisites: None	2			2	2
MAC 171 Measure/Material & Safety	Pre-Requisites: None		2		2	1
MEC 161 Manufacturing Process	Pre-Requisites: None	3			3	3
TOTAL SEMESTER HOURS		6	4		10	8
First Year Spring Semester Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Class Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
MAC 122 CNC Turning (2nd 8 wks)	Pre-Requisites: MAC 121, 131	1	3		4	2
MAC 124 CNC Milling	Pre-Requisites: MAC 121, 131	1	3		4	2
MAC 132 Blueprint Reading/ Mach II	Pre-Requisites: MAC 131	1	2		3	2
MEC 110 Intro to CAD/CAM	Pre-Requisites: MAC 121, 131	1	2		3	2
TOTAL SEMESTER HOURS		4	10		14	8
TOTAL SEMESTER HOURS REQUIRED FOR CERTIFICATE						16