CENTRAL CAROLINA COMMUNITY COLLEGE

Applied Technologies

Program Planning Guide

Computer-Integrated Machining Diploma (D50210)

Program Length: 3 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

Suggested Course Schedule		Class	Lab	Work	Credits	Notes:
1st Semester (fall)						
BPR 111	Print Reading	1	2	0	2	
CIS 111	Basic PC Literacy	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	**7**	**22**	**0**	**16**	
2nd Semester (spring)						
BPR 121	Blueprint Reading-Mech	1	2	0	2	
MAC 112	Machining Technology II	2	12	0	6	
MAC 124	CNC Milling	1	3	0	2	
MAC 152	Adv. Machining Calc	1	2	0	2	
English, select one:		3	0	0	3	
ENG 102	Applied Communications II					
ENG 111	Writing and Inquiry					
	Total Semester Hours	**8**	**19**	**0**	**15**	
3rd Semester (summer)						
MAC 113	Machining Technology III	2	12	0	6	
Humanities/Fine Arts Elective		3	0	0	3	
	Total Semester Hours	**5**	**12**	**0**	**9**	
Total Semester Hours Credit Required for Graduation: 40						

Effective Term: 2002FA

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

CIS 111 Basic PC Literacy
This course provides an overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and fundamental workplace use. Upon completion, students should be able to demonstrate basic personal computer skills.

ENG 102 Applied Communications II
Prerequisites: Take RED 080 and ENG 090 (minimum grade C)
This course is designed to enhance writing and speaking skills for the workplace. Emphasis is placed on generating short writings such as job application documents, memoranda, and reports and developing interpersonal communication skills with employees and the public. Upon completion, students should be able to prepare effective, short, and job-related written and oral communications.

ENG 111 Writing and Inquiry
Corequisite ENG 011
Prerequisites: ENG 002 P1 grade and ENG 011
This course is designed to develop the ability to produce clear writing in a variety of genres and formats using a recursive process. Emphasis includes inquiry, analysis, effective use of rhetorical strategies, thesis development, audience awareness, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in English Composition.

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 112 Machining Technology II
This course provides additional instruction and practice in the use of precision measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection and use of work holding devices, speeds, feeds, cutting tools, and coolants. Upon completion, students should be able to perform basic procedures on precision grinders and advanced operations of measuring, layout, drilling, sawing, turning, and milling.

MAC 113 Machining Technology III
This course provides an introduction to advanced and special machining operations. Emphasis is placed on working to specified tolerances with special and advanced setups. Upon completion, students should be able to produce a part to specifications.

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 152 Adv Machining Calc
This course combines mathematical functions with practical machine shop applications and problems. Emphasis is placed on gear ratios, lead screws, indexing problems, and their applications in the machine shop. Upon completion, students should be able to calculate solutions to machining problems.

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.

Approved Humanities/Fine Arts Electives
Associate in Applied Science Degree/Diploma

ART 111	Art Appreciation
ART 114	Art History Survey I
ART 115	Art History Survey II
DRA 111	Theatre Appreciation
ENG 125	Creative Writing I
ENG 231	American Literature I
ENG 232	American Literature II
ENG 241	British Literature I
ENG 242	British Literature II
HUM 110	Technology & Society
HUM 115	Critical Thinking
HUM 120	Cultural Studies
HUM 122	Southern Culture
HUM 150	American Women's Studies
HUM 160	Introduction to Film
MUS 110	Music Appreciation
MUS 112	Introduction to Jazz
PHI 240	Introduction to Ethics
REL 110	World Religions
REL 211	Intro to Old Testament
REL 212	Intro to New Testament