Career Pathway Options: Associate in Applied Science in Computer-Integrated Machining with an Emphasis on Tool, Die and Mold Making (Higher entrance standards required)

Program Sites: Lee Campus – Evening Program; Harnett Campus – Evening Program

Suggested Course Schedule:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
<th>Credit</th>
<th>Grade</th>
<th>Semester</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1st Semester (Fall)</td>
<td>BPR 111</td>
<td>Blueprint Reading</td>
<td>1</td>
<td>2</td>
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<td></td>
<td>CIS 111</td>
<td>Basic PC Literacy</td>
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<tr>
<td></td>
<td>MAC 111</td>
<td>Machining Technology</td>
<td>2</td>
<td>12</td>
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<tr>
<td></td>
<td>MAC 151</td>
<td>Machining Calculations</td>
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<td>MAC 171</td>
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<td></td>
<td>MEC 142</td>
<td>Physical Metallurgy</td>
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<td>MAC 112</td>
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<td>MAC 124</td>
<td>CNC Milling</td>
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<td>3rd Semester (Summer)</td>
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(1) May substitute ENG 111
(2) May substitute MAT 120

Total Semester Hours Credit: 40

Course Descriptions:

BPR 111  Blueprint Reading  1-2-2
This course introduces the basic principles of blueprint reading. Topics include line types, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic blueprints and visualize the features of a part.

BPR 121  Blueprint Reading: Mechanical  1-2-2
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  1-2-2
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  3-0-3
Prerequisites: RED 080 and ENG 090 or appropriate placement test scores
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. The computer is used as a writing and design tool for this course. This is a diploma-level course.

MAC 111  Machining Technology I  2-12-6
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**  
2-12-6  
*Local Prerequisite: MAC 111*

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**  
2-12-6  
*Local Prerequisite: MAC 112*

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**  
1-3-2

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 151  Machining Calculations**  
1-2-2

This course introduces basic calculations as they relate to machining occupations. Emphasis is placed on basic calculations and their applications in the machine shop. Upon completion, students should be able to perform basic shop calculations.

**MAC 171  Measure/Material & Safety**  
0-2-1

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 101  Applied Mathematics I**  
2-2-3

*Prerequisite: Take one: DMA-010, DMA-020, and DMA-030; MAT 060, MAT 070, MAT 080, MAT 090, MAT 095, or appropriate placement test scores*

This course is a comprehensive review of arithmetic with basic algebra designed to meet the needs of certificate and diploma programs. Topics include arithmetic and geometric skills used in measurement, ratio and proportion, exponents and roots, applications of percent, linear equations, formulas, and statistics. Upon completion, students should be able to solve practical problems in their specific areas of study. This course is intended for certificate and diploma programs.

**MEC 142  Physical Metallurgy**  
1-2-2

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.