

# Machining Technology

FALL 2009

[A50300] Degree (Day); [D50300] Diploma (Day); [C50300] Certificate (Day & Evening)

The Machining Technology 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 will learn to interpret blueprints, set up manual and CNC machines, perform basic and advanced machining operations and make decisions to insure that work quality is maintained. Employment opportunities for machining technicians exist in manufacturing industries, public institutions, governmental agencies and in a wide range of specialty machining and tool and die job shops.

## COMPETENCIES

Randolph Community College is committed to continuous improvement through program evaluation. One part of the evaluation is to assess program competencies. While our program contains many competencies for students to achieve, each year a select few are chosen for assessment purposes. This year, program competency assessment will focus on these:

1. Proper use precision measuring tools.
2. Show proficiency in print reading principles.
3. Setup and operate manual machine tools.
4. Use CNC turning and milling machines.
5. Demonstrate proficiency in CAD/CAM applications.
6. Illustrate Tool & Die, Mold Making principles.

## HAAS Technical Education Center (HTEC)

Randolph Community College's Machining Technology Program has been designated a Haas Technical Education Center by Haas Automation. Randolph Community College becomes only one of 650 schools nationwide to be awarded this designation. To qualify, a school must meet quality standards established by Haas and the HTEC Council. Haas Automation is the largest Computer Numerical Control (CNC) machine tool builder in the world. This allows our students the opportunity to learn the latest CNC programming applications on Haas machines. This is the same type of programming and equipment students will be exposed to when they go to work in the machining industry.

## GENERAL ADMISSIONS REQUIREMENTS FOR CURRICULUM PROGRAMS

Applicants for admission to Randolph Community College must be 18 years of age or high school graduates. The College will accept students with a high school equivalency diploma. A high school diploma or the equivalent is required of all applicants enrolling in curriculum courses. Persons intending to enroll in a specific curriculum are encouraged to submit their applications at least two months prior to the term in which they wish to enroll. Applicants are not admitted into specific curriculum programs, and thus, not eligible for financial aid until admission requirements are met (i.e. transcripts, testing, etc.). Applications can be obtained from high school counselors and from Student Services.

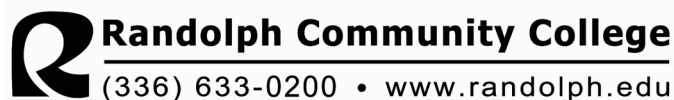
## IN ORDER TO ENROLL, THE STUDENT SHOULD

- complete an RCC application,
- provide official copies of high school transcript and/or GED test scores and all college transcripts,\*
- call (336) 633-0224 to discuss placement testing,
- meet with someone in RCC's financial aid office if necessary, (336)633-0205,
- meet with your faculty advisor (during specified registration period),
- register and pay for classes (during specified registration period).

\*Applicants who are high school graduates should request a copy of their high school transcript. In cases where the last six weeks' work is not completed, a supplemental transcript should be forwarded to the College after the student's graduation. GED graduates must submit official copies of their GED test scores. Students transferring from other colleges or post-high school institutions must submit official transcripts from all such institutions attended. For transcript release forms, call Student Services, (336) 633-0224. Transcripts are not official unless they are sent directly from the high school or college attended.

## Faculty Advisors

The faculty advisors for Machining Technology are Mitchell Kiser, (336) 633-0251, [mlkiser@randolph.edu](mailto:mlkiser@randolph.edu) and Garret Parker, (336) 633-0320, [gbparker@randolph.edu](mailto:gbparker@randolph.edu).



## MACHINING TECHNOLOGY CURRICULUM BY SEMESTERS Degree, Diploma, Certificate (Day)

|  | Hours/Week |           |           | Sem. Hrs<br>Credit |
|--|------------|-----------|-----------|--------------------|
|  | Class      | Lab       | Wk. Exp.  |                    |
| <b>First Year: Fall Semester</b>       |            |           |           |                    |
| BPR 111 **Blueprint Reading            | 1          | 2         | 0         | 2                  |
| CIS 113 Computer Basics                | 0          | 2         | 0         | 1                  |
| ENG 111 *Expository Writing            | 3          | 0         | 0         | 3                  |
| MAC 111 **Machining Technology I       | 2          | 12        | 0         | 6                  |
| MAC 122 *CNC Turning                   | 1          | 3         | 0         | 2                  |
| MAC 151 **Machining Calculations       | <u>1</u>   | <u>2</u>  | <u>0</u>  | <u>2</u>           |
|  | <b>8</b>   | <b>21</b> | <b>0</b>  | <b>16</b>          |
| <b>First Year: Spring Semester</b>     |            |           |           |                    |
| BPR 121 *Blueprint Reading: Mech.      | 1          | 2         | 0         | 2                  |
| ENG 114 *Prof Research & Reporting     | 3          | 0         | 0         | 3                  |
| MAC 112 **Machining Technology II      | 2          | 12        | 0         | 6                  |
| MAC 124 *CNC Milling                   | 1          | 3         | 0         | 2                  |
| MAC 152 ** Adv. Machining Calculations | <u>1</u>   | <u>2</u>  | <u>0</u>  | <u>2</u>           |
|  | <b>8</b>   | <b>19</b> | <b>0</b>  | <b>15</b>          |
| <b>First Year: Summer Session</b>      |            |           |           |                    |
| MAC 113 *Machining Technology III      | 2          | 12        | 0         | 6                  |
| MEC 110 * Introduction to CAD/CAM      | 1          | 2         | 0         | 2                  |
| or                                     |            |           |           |                    |
| COE 111 *Coop. Work Experience I       | <u>0</u>   | <u>0</u>  | <u>10</u> | <u>1</u>           |
|  | <b>2</b>   | <b>12</b> | <b>0</b>  | <b>7</b>           |
|  |            |           | or        |                    |
|  | <b>3</b>   | <b>14</b> | <b>10</b> | <b>8</b>           |
| <b>Second Year: Fall Semester</b>      |            |           |           |                    |
| MAC 214 Machining Technology IV        | 2          | 12        | 0         | 6                  |
| MAC 224 Advanced CNC Milling           | 1          | 3         | 0         | 2                  |
| MAC 243 Die Making I                   | <u>2</u>   | <u>6</u>  | <u>0</u>  | <u>4</u>           |
|  | <b>5</b>   | <b>21</b> | <b>0</b>  | <b>12</b>          |
| <b>Second Year: Spring Semester</b>    |            |           |           |                    |
| MAC 222 Advanced CNC Turning           | 1          | 3         | 0         | 2                  |
| MAC 241 Jig & Fixtures I               | 2          | 6         | 0         | 4                  |
| MAC 245 Mold Construction I            | 2          | 6         | 0         | 4                  |
| --- Social/Behavioral Science          | 3          | 0         | 0         | 3                  |
| --- Humanities/Fine Arts               | <u>3</u>   | <u>0</u>  | <u>0</u>  | <u>3</u>           |
|  | <b>11</b>  | <b>15</b> | <b>0</b>  | <b>16</b>          |
| <b>Second Year: Summer Session</b>     |            |           |           |                    |
| PHY 121 Applied Physics I              | 3          | 2         | 0         | 4                  |
| MEC 231 Computer-Aided Manu. I         | 1          | 4         | 0         | 3                  |
| or                                     |            |           |           |                    |
| COE 112 Cooperative Work Exp I         | <u>0</u>   | <u>0</u>  | <u>20</u> | <u>2</u>           |
|  | <b>4</b>   | <b>6</b>  | <b>0</b>  | <b>7</b>           |
|  |            |           | or        |                    |
|  | <b>3</b>   | <b>2</b>  | <b>20</b> | <b>6</b>           |

\*Courses required for Diploma

\*\*Courses required for Certificate and Diploma

**TOTAL SEMESTER HOURS CREDIT FOR DEGREE**

**72 or 74**

**TOTAL SEMESTER HOURS CREDIT FOR DIPLOMA**

**38 or 39**

**TOTAL SEMESTER HOURS CREDIT FOR MACHINING CERTIFICATE**

**18**

**TOTAL SEMESTER HOURS CREDIT FOR CNC PROGRAMMING TURNING AND MILLING CERTIFICATE**

**12**

## MACHINING TECHNOLOGY CURRICULUM BY SEMESTERS Certificate (Evening)

|                                     | Hours/Week |          |          | Sem. Hrs<br>Credit |
|-------------------------------------|------------|----------|----------|--------------------|
|                                     | Class      | Lab      | Wk. Exp. |                    |
| <b>First Year: Fall Semester</b>    |            |          |          |                    |
| BPR 111 **Blueprint Reading         | 1          | 2        | 0        | 2                  |
| MAC 111A Machining Technology I     | <u>1</u>   | <u>6</u> | <u>0</u> | <u>3</u>           |
|                                     | <b>2</b>   | <b>8</b> | <b>0</b> | <b>5</b>           |
| <b>First Year: Spring Semester</b>  |            |          |          |                    |
| MAC 111B Machining Technology I     | 1          | 6        | 0        | 3                  |
| MAC 151 Machining Calculations      | <u>1</u>   | <u>2</u> | <u>0</u> | <u>2</u>           |
|                                     | <b>2</b>   | <b>8</b> | <b>0</b> | <b>5</b>           |
| <b>Second Year: Fall Semester</b>   |            |          |          |                    |
| MAC 112A Machining Technology II    | 1          | 6        | 0        | 3                  |
| MAC 152 Adv. Machining Calculations | <u>1</u>   | <u>2</u> | <u>0</u> | <u>2</u>           |
|                                     | <b>2</b>   | <b>8</b> | <b>0</b> | <b>5</b>           |
| <b>Second Year: Spring Semester</b> |            |          |          |                    |
| MAC 112B Machining Technology II    | <u>1</u>   | <u>6</u> | <u>0</u> | <u>3</u>           |
|                                     | <b>6</b>   | <b>6</b> | <b>0</b> | <b>3</b>           |
| <b>TOTAL SEMESTER HOURS CREDIT:</b> |            |          |          | <b>18</b>          |

## CURRICULUM BY SEMESTERS - CNC (Computer Numerical Control) Programming, Turning and Milling Certificate (Evening)

|                                     | Hours/Week |          |          | Sem. Hrs<br>Credit |
|-------------------------------------|------------|----------|----------|--------------------|
|                                     | Class      | Lab      | Wk. Exp. |                    |
| <b>First Year: Fall Semester</b>    |            |          |          |                    |
| BPR 111 **Blueprint Reading         | 1          | 2        | 0        | 2                  |
| MAC 122 CNC Turning                 | <u>1</u>   | <u>3</u> | <u>0</u> | <u>2</u>           |
|                                     | <b>2</b>   | <b>5</b> | <b>0</b> | <b>4</b>           |
| <b>First Year: Spring Semester</b>  |            |          |          |                    |
| MAC 222 Advanced CNC Turning        | 1          | 3        | 0        | 2                  |
| MEC 110 Introduction to CAD/CAM     | <u>1</u>   | <u>3</u> | <u>0</u> | <u>2</u>           |
|                                     | <b>2</b>   | <b>6</b> | <b>0</b> | <b>4</b>           |
| <b>Second Year: Fall Semester</b>   |            |          |          |                    |
| MAC 124 CNC Milling                 | <u>1</u>   | <u>3</u> | <u>0</u> | <u>2</u>           |
|                                     | <b>1</b>   | <b>3</b> | <b>0</b> | <b>2</b>           |
| <b>Second Year: Spring Semester</b> |            |          |          |                    |
| MAC 224 Advanced CNC Milling        | <u>1</u>   | <u>3</u> | <u>0</u> | <u>2</u>           |
|                                     | <b>1</b>   | <b>3</b> | <b>0</b> | <b>2</b>           |
| <b>TOTAL SEMESTER HOURS CREDIT:</b> |            |          |          | <b>12</b>          |

Visit RCC's website: [www.randolph.edu](http://www.randolph.edu)

An application for admission is available to be downloaded from the web