

**SYLLABUS  
REVISED 2012**

**DIVISION:** Business & Engineering Technologies

**CURRICULA IN WHICH COURSE IS TAUGHT:** Precision Machining Technology

**COURSE NUMBER AND TITLE:** MAC 102 - Machine Shop II

**CREDIT HOURS: 7 HOURS/WK. LEC: 4 HOURS/WK. LAB: 9 LEC/LAB COMB: 13**

**I. CATALOG DESCRIPTION:**

MAC 102 provides for advanced operation and set up of lathes, milling machine, and grinders.

**II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES IN WHICH IT IS TAUGHT:**

This course advances the students ability to select and safely use basic machine tools and measuring instruments for the shaping and forming of machine parts.

**III. REQUIRED BACKGROUND:**

MAC 101 or equivalent

**IV. COURSE CONTENT:**

The following items will be covered in spring semester (not necessarily in this order):

1. Screw threads
  - a. Types
  - b. Nomenclature
  - c. Calculation
  - d. Cutting with engine lathe (chasing)
  - e. Taps and dies
2. Cutting fluids
  - a. Types
  - b. Uses
  - c. Method of application
3. Milling machine
  - a. Types
  - b. Nomenclature
  - c. Cutter selection
  - d. Feeds and speeds
  - e. Work holding devices
4. Hand tools
  - a. Files
  - b. Hand reamers
  - c. Combination squares
  - d. Hack saws

5. Measurement
  - a. Advanced use of micrometers (inside & outside)
  - b. Advanced angular measurement
6. Metric Measurements
  - a. Metric micrometers
  - b. Metric calipers
  - c. Metric rulers
  - d. Metric height gages

**V. The following General Education Objectives will be addressed in this course:**

- Communications**                       **Information Literacy**
- Culture and Social Understanding**
- Critical Thinking**                       **Scientific reasoning**
- Quantitative Reasoning**     **Personal Development**

**VI. LEARNER OUTCOMES**

**VII. EVALUATION**

<b>Learner outcome</b> <ul style="list-style-type: none"> <li>• Use precision measuring tools</li> </ul>	<b>Evaluation method</b> <ul style="list-style-type: none"> <li>• Lab exercises and written test</li> </ul>
<b>Learner outcome</b> <ul style="list-style-type: none"> <li>• <b>Perform threading and boring operations</b></li> </ul>	<b>Evaluation method</b> <ul style="list-style-type: none"> <li>• Lab exercises and written test</li> </ul>
<b>Learner outcome</b> <ul style="list-style-type: none"> <li>• <b>Drill, ream and bore holes using milling machine</b></li> </ul>	<b>Evaluation method</b> <ul style="list-style-type: none"> <li>• Lab exercises and written test</li> </ul>
<b>Learner outcome</b> <ul style="list-style-type: none"> <li>• Read metric prints and make metric projects using metric instruments</li> </ul>	<b>Evaluation method</b> <ul style="list-style-type: none"> <li>• Lab exercises, in class assignments and written test</li> </ul>
<b>Learner outcome</b> <ul style="list-style-type: none"> <li>• Fit parts using shrink, force and running methods</li> </ul>	<b>Evaluation method</b> <ul style="list-style-type: none"> <li>• Lab exercises and written tests</li> </ul>
<b>Learner outcome</b> <ul style="list-style-type: none"> <li>• Set-up and Use steady rest</li> </ul>	<b>Evaluation method</b> <ul style="list-style-type: none"> <li>• Lab exercises</li> </ul>
<b>Learner outcome</b> <ul style="list-style-type: none"> <li>• Select and mount work holding device and milling cutter for Horizontal</li> </ul>	<b>Evaluation method</b> <ul style="list-style-type: none"> <li>• Lab exercises and written tests</li> </ul>

milling machine	
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**VII.** Over 90% of the students complete this class.