

SYLLABUS

DIVISION: Business and Engineering Technology

REVISED: Fall 2014

CURRICULA IN WHICH COURSE IS TAUGHT: Precision Machining Technology

COURSE NUMBER AND TITLE: MAC 161/162/163/164 Machine Shop Practices I/II/III/IV

CREDIT HOURS: 3 **HOURS/WK LEC:** 1 **HOURS/WK LAB:** 3 **LEC/LAB COMB:** 4

I. CATALOG DESCRIPTION:

- Introduces safety procedures, bench work, hand tools, precision measuring instruments, drill presses, cut-off saws, engine lathes, manual surface grinders, and milling machines.
- Offers practice in the operation of the drill press, engine lathe, vertical milling machine, horizontal milling machine, and the surface grinder.
- Introduces practical heat treatment of directly hardenable steels commonly used in machine shops.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:

- This course teaches the student identification, nomenclature, and the safe use of basic machine tools and measuring instruments necessary to become a machinist.

III. REQUIRED BACKGROUND/PREREQUISITES:

Admittance to Program

IV. COURSE CONTENT:

The following items will be covered throughout the courses of this program (not necessarily in this order):

PLEASE NOTE: Not all of the subject matter contained in the course content will be covered in a single semester. Also, individual needs, curricular programs and plans will determine what content is covered.

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|------------------------------|---------------------------------------|
| 1. Engine lathes | 11. Indexing |
| 2. Drilling machines | 12. Gears |
| 3. Sawing machines | 13. Universal tool and cutter grinder |
| 4. Measurement | 14. Arbor and hydraulic presses |
| 5. Hand tools | 15. Heat treatment |
| 6. Vertical milling machines | 16. Surface grinders |
| 7. Screw threads | |
| 8. Cutting fluids | |
| 9. Precision measurement | |
| 10. Keys & keyways | |

VI. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE (Place X by all that apply)

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|---|--|
| <input checked="" type="checkbox"/> Communications | <input checked="" type="checkbox"/> Personal Development |
| <input checked="" type="checkbox"/> Critical Thinking | <input checked="" type="checkbox"/> Quantitative Reasoning |
| <input checked="" type="checkbox"/> Cultural & Social Understanding | <input type="checkbox"/> Scientific Reasoning |
| <input checked="" type="checkbox"/> Information Literacy | |

VI. LEARNER OUTCOMES

VII. EVALUATION

<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate knowledge of proper safety procedures in the machine shop. 	<p>Evaluation method</p> <p>Lab exercises</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate the ability to use basic hand tools and measurement tools. 	<p>Evaluation method</p> <p>Lab exercises</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate the proper use of sawing machines, belt sanders, and pedestal grinders. 	<p>Evaluation method</p> <p>Lab exercises</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate the proper use of drilling machines. 	<p>Evaluation method</p> <p>Lab exercises</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate the proper use of the engine lathe. 	<p>Evaluation method</p> <p>Lab exercises</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate the proper use of the vertical milling machine. 	<p>Evaluation method</p> <p>Lab exercises</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate the ability to apply practical heat-treatment methods. 	<p>Evaluation method</p> <p>Lab exercises</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> Demonstrate the proper use of the manual surface grinder. 	<p>Evaluation method</p> <p>Lab exercises</p>

VIII. Over 90% of students will successfully complete this class.