

Course Outline
IMTC 105
BASIC SHOP SKILLS
4 Semester Hours

The Community College of Baltimore County

Description

Basic Shop Skills

Teaches the skills and techniques to recondition mechanical equipment; emphasis will also be placed on hand held tools, material handling, pneumatic and electrical tools, measurements, metallurgy fasteners, layout and general shop safety.

Prerequisite: Consent of IMTC Program Director.

Corequisite: (MATH 081 or LVM 1), (ENGL 051 or LVE 1)

Overall Course Objectives

Upon completion of this course the student will be able to:

- A. Identify hand tools such as hammers, drills, taps, files, saws, wrenches and their uses in application.
- B. Measure with rule, tape and calipers within 1/64" tolerance.
- C. Layout a job from verbal instructions or a sketch.
- D. Use a selection of files such as flat, round or 1/2 round to form a piece to layout liens
- E. Identify and discuss the physical properties of 1020, 1040 and 4145 metals and their uses.
- F. Use a drill press to drill, ream, countersink and counterbore holes
- G. Use national course and national pipe taper to produce internal threads
- H. Identify the different types of fasteners their grades and uses.
- I. Identify and demonstrate the methods of when to use heli-coils, re-tapping and thread combs to repair damaged threads.
- J. Discuss and demonstrate the torquing of bolt and nuts in inch pounds and foot pounds..
- K. Identify and lecture on pneumatic and electrical hand tools such as grinders and drills.
- L. Demonstrate how to dress and change a grinding wheel.
- M. Explain the safety and uses of ladders and scaffolding.
- N. Demonstrate how to find the center of gravity and rigging methods used to move it.
- O. Sketch, matchmark using letters or numbers, disassemble and reassemble a reducer.
- P. Discuss the reasons for inspections of parts and the use of dye-checking equipment to check for cracks.
- Q. Practice the proper safety using O.S.H.A. standards.

Major Topics

List all major topics in outline form if appropriate

- I. Measurements
- II. Basic hand tools
- III. Layout
- IV. Files
- V. Metallurgy
- VI. Fasteners
- VII. Drill press
- VIII. Grinder
- IX. Pneumatic and electrical hand tools
- X. Strip/assemble job
- XI. Material handling
- XII. General shop safety

Course Requirements

Exams 75%

Quizzes 25%

(Subject to revision by the instructor)

Other Course Information