COURSE: INDUSTRIAL TOOLS

PREREQUISITES: None

DESCRIPTION:

Level I: This course covers the proper use of hand and power tools. (IMT 112 Hand Tool Operations—3 Credit Hours plus IMT 113 Power Tool Operations—2 Credit Hours.)

Level II: A study of the proper usage of hand and power tools used by industrial plant mechanics. Emphasis will be placed on projects which will demonstrate the necessary skills in the use of hand tools, precision instruments, layouts, tolerance, and surface finish to provide knowledge and skill to the students.

TEXTBOOK(S) OR ALTERNATIVE:

Proper use and care of hand tools

MATERIALS (specifying those to be purchased by student):

N/A

COLLATERAL READING:

Assorted handouts

CLASS MANAGEMENT ACTIVITIES (Attendance, tardies, testing, etc.):

1. Attendance - no more than 18 hours of scheduled class may be missed; attendance will be kept "by the hour"

2. Testing - objective tests will be given following each major topic (see topical outline); projects will be evaluated subjectively.

3. Grades - based on objective tests (20%), "project" evaluation (60%) and general shop/class behavior, adherence to good safety practices, etc.

Academic Dishonesty:

Students are expected to do their own work. Please refer to the NETC Student Code and Grievance Procedure for definition of academic dishonesty and an outline of disciplinary action that may result therefrom.

Disabilities Statement:

Students with disabilities are encouraged to contact the Dean of Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Dean of Student Services will provide guidance regarding official documentation of disabilities and/or accommodation of needs. (See College Catalog).
Student ID:
It is mandatory that every student wear his or her student ID at all times when on the Cheraw campus.

During the first week of classes, the instructor will issue a reminder to wear the ID. This reminder is a warning. After the first week of classes, instructors are required to dismiss students without ID from class. The student may get his/her ID (or a new one in Student Services for $3.00) and return to class before the midpoint of the class. If the student cannot get an ID and returns to class by the midpoint, the instructor will record the absence.

RESOURCES (A-V, persons, tools/equipment):
Videos - Introduction to Hand Tools
Slides - Shop Tools
Industrial Portable Power Tools
Measuring Tools Explained

Scott Precision Measuring Kit

COURSE TOPICAL OUTLINE: (List topics and sub-topics of course) and Calendar or approximate length of time devoted to topic.

I. Hand tools (20 hours)
   A. Common hand tools
   B. Metal-cutting hand tools
   C. Precision measuring instruments (vernier caliper, micrometer, vernier height gauge, etc.)

II. Power tools (30 hours)
   A. Portable power tools
   B. Powered equipment

III. Projects (85 hours)
   A. Sharpening twist drill (5 hours)
   B. Sharpening chisels (5 hours)
   C. Using a hacksaw (10 hours) Precision Metal Handsawing
   D. "Cube" project (25 hours)
   E. "Fitted" project No. 2 (40 hours)
   F. "T" Slot cleaner
   G. Ice Scraper design and make
   H. Two page report on Hand/Power Tools

OBJECTIVES OF COURSE:
1. Name, identify, and demonstrate proper usage and safety precautions of selected hand tools.

2. Name and identify selected power tools. Demonstrate proper and safe usage.

3. Make precision measurements (within .001 inch) using a vernier caliper and a micrometer.
4. Using a hand file, vernier caliper, and precision square, process a rough block of aluminum into a cube having flat sides and beveled edges. Block to be square and smooth finish.


6. Using a grinder, correctly sharpen a drill bit. Three twist drills small, medium and large.

7. Using a blunted cold chisel, height gage, hammer, and grinder, produce a sharpened chisel to correct cutting angle. Demonstrate to instructor how to use chisel correctly.

8. Saw a metal block to a precision scribed line using a hacksaw.

**INSTRUCTIONAL METHODS TO COMPLETE OBJECTIVES:**

Objectives 1 - 3: Films, discussions, demonstrations (Safety) list

Objective 4: Laboratory project: The Cube

Objective 5: Laboratory project: Fitted

Objective 6: Laboratory project

Objective 7: Laboratory project

Objective 8: Laboratory project

**EVALUATIVE METHODS TO APPRAISE OBJECTIVES:**

Objectives 1 - 3: Objective tests, laboratory assignments

Objective 4: See "cube" grading scale

Objective 5: See "fitted" grading scale

Objective 6: Evaluation of drilled hole from the sharpened bit

Objective 7: Evaluation of a uniform 1/8" x 45 chamfer chisel cut by the sharpened chisel

Objective 8: Evaluation by inspection

**GRADING SCALE:** Final grade average will be based on the following:

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<tr>
<th>Grade</th>
<th>Score Range</th>
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<tr>
<td>A</td>
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