Basic Machine Shop introduces students to the exciting world of machine tool manufacturing in today’s advanced Technology. The class main goal is to provide a good understanding of basic machining skills needed for a successful career in a manufacturing environment. It presents basic machine tools, devices and machine shop equipment such as the lathe, milling machine, drill press, power saw, and bench grinder. Machine terminology, theory, math, part layout, and bench work using common measuring tools is included. Emphasis is placed on shop safety, preventative maintenance and housekeeping.

Students will be able to:

1. Describe general safety procedures used when working in a machining environment.

2. Perform mathematical calculations commonly used in a machining setting.

3. Use precision instruments to align parts, machinery and to evaluate finished parts.

4. Explain procedures to setup machining operations including cutting speeds and rate feeds.

5. Demonstrate proper use of hand tools and measuring tools.
## COURSE LEARNING OBJECTIVES

Students will:

1. Define OSHA, NIOSH
2. Identify proper PPE for machining environment.
3. Describe appropriate clothing for machining environment.
4. Describe proper housekeeping for machining environment.
5. Describe the purpose of lockout / tagout procedures.

2. Demonstrate understanding of fractional and decimal math and conversions.
3. Demonstrate ability to locate and identify points in a Cartesian coordinate system.
4. Demonstrate ability to solve right triangles using sine, cosine, and tangent trigonometric functions.

3. Proper use of micrometers.
4. Proper use of calipers.
5. Proper use of dial and test indicators.
6. Proper use of height gage.
7. Proper use of rules.

4. Calculate proper spindle speeds
5. Calculate proper feed rates
6. Apply proper process to align parts and machinery.
7. Relate understanding of technical nomenclature.

5. Proper use of layout tools.
6. Proper use of saws.
7. Proper use of files.

## TEXTBOOK

**Precision Machining Technology 2nd Edition with 910 day MindTap**
Peter J. Hoffman; Eric S. Hopewell; Brian Janes  
**ISBN 13:** 9781305430747  
(If you already have the book use **ISBN 13:** 9781305374737)  
Delmar-Cengage Learning

Optional:

<table>
<thead>
<tr>
<th>Machinery's Handbook 25th edition or newer</th>
<th>Basic Blueprint Reading and sketching, 9th edition</th>
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<tbody>
<tr>
<td>Latest edition number: 29</td>
<td>Thomas P. Olivo; C. Thomas Olivo</td>
</tr>
<tr>
<td><strong>ISBN 13:</strong> 9780831129002</td>
<td><strong>ISBN 13:</strong> 9781435483781</td>
</tr>
<tr>
<td>Industrial Press, Inc.</td>
<td>Delmar-Cengage</td>
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<tr>
<td>Week/Date</td>
<td>Textbook Lectures-Class/Shop Activities</td>
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<td>-----------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>2/Sep 04</td>
<td>Section 1 Unit 1 Introduction to Machining, S1 U2 Careers in Machining</td>
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<tr>
<td>3/Sep 11</td>
<td>S1 U3 Workplace Skills- S2 U1 Introduction to Safety</td>
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<tr>
<td>4/Sep 18</td>
<td>S2 U2 Measurement Systems and Machine Tool Math Overview, S2 U3 Semi-Precision Measurement</td>
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<tr>
<td>5/Sep 25</td>
<td>S2 U4 Precision Measurement, S2 U5 Quality Assurance, Process Planning, and Quality Control, S2 U6 Metal Composition and Classification</td>
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<tr>
<td>6/Oct 3</td>
<td>S2 U7 Heart Treatment of Metals S2 U8 Maintenance, Lubrication, and Cutting Fluid Overview</td>
</tr>
<tr>
<td>7/Oct 10</td>
<td>S3 U1 Understanding Drawings, S3 U2 Layout</td>
</tr>
<tr>
<td>8/Oct 17</td>
<td>S3 U3 Hand Tools- Midterm Exam</td>
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<tr>
<td>9/Oct 24</td>
<td>S3 U3 Hand Tools, S3 U4 Saws and Cutoff Machines</td>
</tr>
<tr>
<td>10/Oct 31</td>
<td>S3 U5 Offhand Grinding</td>
</tr>
<tr>
<td>11/Nov 7</td>
<td>S4 U1 Introduction to Drill Press S4 U2 Tools, Toolholding, and Workholding for the Drill Press</td>
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<tr>
<td>12/Nov 14</td>
<td>S4 U3 Drill Press Operations- Quiz II</td>
</tr>
<tr>
<td>13/Nov 21</td>
<td>S5 U1 Introduction to the Lathe</td>
</tr>
<tr>
<td>14/Nov 28</td>
<td>S6 U1 Introduction to Milling machine</td>
</tr>
<tr>
<td>15/Dec 4</td>
<td>S6 U2 Tools, Toolholding, and Workholding for the Vertical Milling Machine</td>
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<tr>
<td>16/Dec 11</td>
<td>Final Exam</td>
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*Final grades available by Dec 13, 2015.*
GRADING POLICY

<table>
<thead>
<tr>
<th>Grading Category</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Attendance, Class Participation</td>
<td>10%</td>
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<tr>
<td>Lab, Quizzes &amp; Assignments</td>
<td>20%</td>
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<tr>
<td>Midterm Exam</td>
<td>30%</td>
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<tr>
<td>Final Exam</td>
<td>40%</td>
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<tr>
<td>Final Grade</td>
<td>100%</td>
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100-90 = A; 89-80 = B; 79-70 = C; 69-60 = D; less than 60 = F

INSTRUCTIONAL METHODS AND CLASS EXPECTATIONS

<table>
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<tr>
<th>Instructor's Main Goal</th>
<th>Student's Expectation</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruct the student in the best effort in learning, assimilating and applying the knowledge presented by the instructor. By understanding and applying new information in a continuous base the student will insure success in the learning process. Mandatory emphasis must be invested in practicing and following all safety rules and procedures implemented by the instructor including wearing safety glasses and proper clothing inside the machine shop. Additional responsibilities to follow: 1.-Read the assigned chapters in the textbook. 2.-Submit assignments and projects on their due dates. 3.-Prepare for the exams. 4.-Participate in classroom activities. 5.-Utilize online-learnings resources. 6.-Maintain a good attendance record.</td>
<td>The student is expected to employ the best effort in learning, assimilating and applying the knowledge presented by the instructor. By understanding and applying new information in a continuous base the student will insure success in the learning process. Mandatory emphasis must be invested in practicing and following all safety rules and procedures implemented by the instructor including wearing safety glasses and proper clothing inside the machine shop. Additional responsibilities to follow: 1.-Read the assigned chapters in the textbook. 2.-Submit assignments and projects on their due dates. 3.-Prepare for the exams. 4.-Participate in classroom activities. 5.-Utilize online-learnings resources. 6.-Maintain a good attendance record.</td>
<td>Assignments have been developed that will enhance your learning. To better understand a topic, you will be given assignments on key information that you will need to remember for your success. To complete and pass this course you will be required to successfully complete the following on time: 1.-All class projects. 2.-All class and Online MindTap, Quizzes and assignments 3.-Midterm Exam. 4.-Final Exam.</td>
</tr>
</tbody>
</table>
### INSTRUCTIONAL MATERIALS *

**REQUIRED**

1. Standard Micrometer set with Vernier scale, 3” (carbide faces are preferable). $65
2. Digital or Dial Caliper. 6” $15
3. Machinist 6” Scale. $3
4. Test Indicator (.0005” graduation) with mounting attachments, (Stem and Clamp). $23
5. Indicol or other MILL test indicator mounting device. $35
6. Dial Indicator, 1 inch range, with mounting 
   Attachment for a Magnetic Base. $20
7. Magnetic Base, (best purchased with a fine 
   adjustment screw). $20
8. Basic Protractor $8
9. Edge Finder $6
10. Pocket Scribe $3

Listed prices may vary. Tools can be purchased at vendors Bass Tools, Rex Supply, Harbor Freight among others. You must make choices about quality based on your own preferences and finances.
Basic Machine Shop I  Instructor : Joseph Grisales  Start Date : 08/29/2015

What is MindTap?
MindTap is designed to help you master the textbook material. Interactive videos, animations, and activities create a learning path designed by your instructor to guide you through the course and focus on what's important. Get started today!

Registration

1. Connect to https://login.cengagebrain.com/course/MTPNHRPP5P4L
2. Follow the prompts to register your MindTap course.

Payment

After registering for your course, you will need to pay for access using one of the options below:

Online: You can pay online using a credit or debit card, or PayPal.

Bookstore: You may be able to purchase access to MindTap at your bookstore. Check with the bookstore to find out what they offer for your course.

Free Trial: If you are unable to pay at the start of the semester you may choose to access MindTap until 11:59 PM on 09/13/2015 during your free trial. After the free trial ends you will be required to pay for access.

Please note: At the end of the free trial period, your course access will be suspended until your payment has been made. All your scores and course activity will be saved and will be available to you after you pay for access.

If you already registered an access code or bought MindTap online, the course key to register for this course is: MTPN-HRPP-5P4L

System Check

To check whether your computer meets the requirements for using MindTap, go to http://ng.cengage.com/static/browsercheck/index.html

Please Note: the System Check is also accessible in the drop down box next to your name located in the upper right corner of your MindTap page.
COURSE POLICIES

Attendance
Students are expected to attend classes regularly, and to be on time for every class period. Students can be dropped from a class due to excessive absences. Excessive tardiness may be considered absences. Students are responsible for subjects, assignments, and projects covered during their absences. Consult the Student Handbook for more details or visit http://www.hccs.edu/hccs/current-students/student-handbook.

Academic Honesty
Scholastic dishonesty is treated with the utmost seriousness by the instructor and the College. Academic dishonesty includes, but it is not limited to the willful attempt to misrepresent one’s work, cheat, plagiarize, or impede other students’ scholastic progress. Consult the Student Handbook for more details.

Students with Disabilities
Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Support Services Office at his / her respective college at the beginning of each semester. Faculties are authorized to provide only the accommodations requested by the Disability Support Services Office. For Central College, call 713 – 718 – 6164.

Cell Phones-Calculators
All cell phones must be muted, set to vibrate, or turned off during class. Cell phone activity during class is deemed disruptive to the academic process and will not be tolerated. If you need to make or receive an emergency call, please leave the classroom.

If the course allows the use of a calculator during class, lab projects, and exams, the student is responsible to bring his/her calculator. Cell phones are not calculators, and are not allowed to be used for that purpose during class, tests, or exams.

Student ID
Students are required to obtain a Student ID. For additional information, consult the Student Handbook.

Parking Rules and Regulations
Students are required to follow HCC’s regulations regarding parking and permits. For additional information, visit http://www.hccs.edu/hccs/about-hcc/police/parking/parking-rules-and-regulations

Books, Tools and Supplies
Students are required to purchase and bring to class the required textbooks, tools, notebooks, supplies, and writing instruments as required by the instructor.

Dress Code
Dress code must be appropriate for the class. Students must dress in a way that clothing and accessories do not compromise their safety, and the safety of others. Proper foot wear is required in all laboratories. Absolutely no sandals or other footwear that exposes the feet will be allowed.

Classroom & Laboratory Conduct
Proper behavior is expected in all classes and laboratories. Foul language and horseplay are not allowed. Making or receiving cell phone calls during class are not allowed. Sleeping in class is not allowed.

Course Withdrawal
It is the responsibility of the student to officially withdraw from a course before the official withdrawal deadline. A student who does not withdraw from a course by the deadline will receive an “F” as the final grade. Also note that under Section 51.907 of the Texas Education Code, an institution of higher education may not allow a student to drop more than six courses.

HCCS COMMITMENT:
HCC is committed to provide learning and working environment that is free from discrimination on the basis of sex which includes all forms of sexual misconduct. Title IX of the Education Amendments of 1972 requires that when a complaint is filed, a prompt and thorough investigation is initiated. Complaints may be filed with the HCC Title IX Coordinator available at 713 718-8271 or email at oie@hccs.edu

The instructor reserves the right to make any changes in the syllabus if required.