  
**MANUFACTURING TECHNOLOGIES DIVISION  
Central Campus**

**MCHN 1320 – Precision Tools and Measurement**

CRN 81417 – Fall 2015

Central Campus - Room JBW 206 | 3:00PM – 6:00PM| Friday

3 hour lecture course / 48 hours per semester/ 8 weeks / ***Hybrid Course***

**Instructor: Shawn Trumbo**

**Instructor Contact Information:**

Houston Community College

1301 Alabama, JBW #119

Houston, TX 77004

713-718-6849

**Shawn.trumbo@hccs.edu**

**Office hours:**

*Please feel free to contact me during my office hours concerning any problems that you are experiencing in this course. You do not need to wait until you have received a poor grade before asking for my assistance*. *Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics. Feel free to contact me in my office* *or email me anytime.*

**Course Description:**

This is an introduction to the modern science of dimensional metrology. Emphasis on the identification, selection, and application of various types of precision instruments associated with the machining trade. Practice of basic layout and piece part measurements while using standard measuring tools.

**PREREQUISITE / COREQUISITE:**

MCHN 1302

TECM 1301 (Industrial Math)

**Course Student Learning Outcomes:**Upon completion, you will be able to:

|  |  |
| --- | --- |
| 1. Ability to understand basic principles related to Metric (mm) and English (inches) measuring systems. | |
| 1. Interpret machine shop blueprints well enough to identify features being measured. |

1. Convert fractional measurements to decimals and vice versa.
2. Recognize properties and features found on different types of measuring instruments.
3. Distinguish between semi-precision and precision measurements based according to given tolerances.
4. Demonstrate basic knowledge of Geometric Dimensioning and Tolerance (GD&T) principals.
5. Able to sketch components orthographic and isometric views with corresponding dimensions.

**Learning Objectives:**

The successful completion of these learning objectives will ensure a meaningful educational experience. You will:

1. Examine both Metric (mm) and English (inches) measuring systems principles and applications.
2. Review machine shop blueprints and their relations to features being measured.
3. Present a good understanding of fractional to decimals measurements.
4. Demonstrate ways to recognize properties and features found on different types of measuring instruments.
5. Evaluate semi-precision and precision measurements based on a given degree of accuracy.
6. Establish a basic knowledge about Geometric Dimensioning and Tolerance (GD&T) principals.
7. Explain different sketch techniques used to represent objects utilizing both orthographic and isometric views.
8. Assign resources necessary for an effective on-hands application of precision measuring theory.

**16 WEEK CALENDAR**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week# | Dates | Holidays | Academic | BPR Unit |
| 1 | 10/19-10/25 |  |  |  |
| 2 | 10/26-11/1 |  | 26th – ODR; 28th – Last for 70%  30th – Last for 25% |  |
| 3 | 11/2-11/8 |  |  |  |
| 4 | 11/9-11/15 |  |  |  |
| 5 | 11/16-11/22 |  | 20th - LDW |  |
| 6 | 11/23-11/29 | 11/26-11/27 Thanksgiving |  |  |
| 7 | 11/30-12/6 |  |  |  |
| 8 | 12/7-12/13 |  |  | Final |

Grades are available to students after 12/18/2015

**Instructional Methods:**

As an instructor, I want my students to be successful. I feel that it is my responsibility to provide you with knowledge concerning Precision Tools and Measurement by modeling good teaching strategies that allow you to connect the information that you learn in this course to the real world.

As a student wanting to learn about Precision Tools and Measurement, it is your responsibility to read the assigned chapters in the textbook, submit assignments on the due dates, study for the exams, participate in face-to-face classroom activities, utilize the online component of the course, and enjoy yourself throughout the experience**.**

**Student Assignments:**

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 in Precision Tools and Measurement. To complete and pass this course you will be required to successfully complete the following on time:

All Assignments & Online Quizzes

Midterm Exam

Final Exam

**Assessments:**

Assignments & quizzes 30%

Mid Term Exam 30%

Final Exam 30%

Instructor’s discretion

(Attendance, attitude,

class participation, etc.) 10%

Final Grade 100%

**Instructor Requirements:**

As your Instructor, it is my responsibility to**:**

* Provide the grading scale and detailed grading formula explaining how student grades are to be derived
* Facilitate an effective learning environment through class activities, discussions, and lectures
* Description of any special projects or assignments
* Inform students of policies such as attendance, withdrawal, tardiness and make up procedures
* Provide the course outline and class calendar which will include a description of any special projects or assignments
* Arrange to meet with individual students as needed

To be successful in this class, it is the student’s responsibility to**:**

* Attend class and participate in class discussions and activities
* Read and comprehend the textbook
* Complete the required assignments and exams
* Ask for help when there is a question or problem
* Keep copies of all paperwork, including this syllabus, handouts and all assignments

**Program/Discipline Requirements:**

**HCC Grading Scale**

Please see the student Handbook

<http://www.hccs.edu/district/students/student-handbook/>

**Grading Criteria:**

I will conduct quizzes, exams, and assessments that you can use to determine how successful you are at achieving the course learning outcomes (mastery of course content and skills) outlined in the syllabus. If you find you are not mastering the material and skills, you are encouraged to reflect on how you study and prepare for each class. I welcome your observations on what you discover and may be able to assist you in finding resources that will improve your performance.

**Instructional Materials:**

**TEXT:** **Precision Machining Technology 2nd Edition with Mindtap**

Peter J. Hoffman; Eric S. Hopewell; Brian Janes

ISBN 13: 978-1305625099

©2012 Delmar-Cengage Learning

**TEXT: Print Reading for Industry**

Walter C. Brown / Ryan K. Brown

ISBN 13: 978-1-63126-051-3

©2016 Goodheart-Wilcox Company INC.

**Required Tools:**

6 inch Machinists Scale

6 inch Digital or Dial Caliper

0-3 inch Standard Micrometer set with Vernier Scale

**A computer with internet access.**

***To access the online component of this class go to***:

<https://eo2.hccs.edu>

This will take you to the login page. Please follow the directions give there to log in. After you login you should see this course on your home page.

**HCC Policy Statements:**

Access Student Policies on the web site:

<http://www.hccs.edu/district/about-us/procedures/student-rights-policies--procedures/>

*HCC is committed to provide a 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 the circumstances require it.*