IT 351 Industrial Metrology  
Department of Technology  
Fall 2013

Professor: Dr. Bruce DeRuntz  
Class Room: ENGR D-112F  
Lab Hours: Mondays 8:00am – 10:50am  
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DESCRIPTION:  
The lab is an introduction to the methods and equipment used in industrial measurement and inspection. The lab utilizes a practical, hands-on approach to learning that where the student uses precision measuring instruments and equipment to measure geometric features of real-world workpieces. The lab will include such topics as vernier & digital micrometers; dial & digital calipers; height gage; gage blocks; surface roughness gages; optical comparator; coordinate measurement machine (CMM); and a gage repeatability and reproducibility (GR&R) study.

OBJECTIVES:  
For the student to gain proficiency in the use of the precision measuring instruments and equipment typically found in an industrial manufacturing environment. The student should also develop a sound knowledge of good metrology practices in order to eliminate measurement error.

EVALUATION:  
Lab assignments will be given out at the beginning of each lab session. After an introduction to the precision measuring instruments and/or equipment under discussion, the student will be responsible to use the instruments and/or equipment to carry out the assigned task indicated on the handout.

The assignments are graded using the following criteria:

<table>
<thead>
<tr>
<th>Report – 50%</th>
<th>Skills – 50%</th>
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<tbody>
<tr>
<td>Neatness</td>
<td>Technique</td>
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<tr>
<td>Articulation</td>
<td>Accuracy</td>
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<tr>
<td>Grammar/Punctuation</td>
<td>Depth of Knowledge</td>
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Each weekly lab assignment is to be completed in class and is worth 10 points. The Final Metrology Project is the culmination of all previous lab assignments and is worth 30 points.
Grades | Points
--- | ---
Weekly Lab Assignments (10) | 10
Final Metrology Project (1) | 30
Total Points | 130

**Final Exam Meeting Time:** Mon., Dec 9 from 07:50-09:50a.m.

Note: Lab grade accounts for 70% of the entire course grade.

**Grading chart for students to track their progress in the lab:**

| Student Name | Attendance | Evaluation of Rules | Combination Square | Dial & Digital Calipers | Gage Repeatability & Reproducibility | Vernier & Digital Micrometers | Gage blocks | Dial & Digital Indicators | Surface Measurement | Coordinate Measuring Machine (CMM) | Optical Comparator | Final Metrology Project | Total | Percentage |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 30 | 130 | 100 |

**GRADING POLICY:**
Missed labs will NOT be made up, unless the instructor approves an appropriate reason. Excuse for absence must be presented to instructor within ONE week from date of missed class. The missed lab must be made up on the make-up date set by the instructor.

**ACADEMIC CONDUCT:** Cheating by submitting work of other students as your own, or plagiarism in any form will result in penalties ranging from an F on the assignment to expulsion from the university, depending on the seriousness of the offense.

**Emergency Procedures:**
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on the BERT’s website at [www.bert.siu.edu](http://www.bert.siu.edu), Department of Public Safety’s website [www.dps.siu.edu](http://www.dps.siu.edu) (disaster drop down) and in the Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.
Lab Schedule

August 19, 2013: Lab #1 – Evaluation of Rules

August 26, 2013: Lab #2 – Combination Square

September 9, 2013: Lab #3 - Dial & Digital Calipers

September 16, 2013: Lab #4 - Gage Repeatability and Reproducibility

September 23, 2013: Lab #5 - Vernier & Digital Micrometers

September 30, 2013: Lab #6 - Gage Blocks

October 7, 2013: Lab #7 - Dial & Digital Indicators

October 21, 2013: Lab #8 - Surface Measurement

October 28, 2013: Lab #9 - Coordinate Measuring Machine

November 4, 2013: Lab #10 - Optical Comparator

December 6, 2013: Final Metrology Project Due Date

Final Exam Meeting Time: Monday, December 9 from 07:50 - 09:50a.m.