



QSTC 150 (Fundamentals of Dimensional Metrology)

Course Information

Division	ASET
Contact Hours	45
Theory	15
Lab Hours	30
Total Credits	3

Prerequisites **MATH 090 and RDG 090 or qualifying scores on accepted placement tests. MATH 119 highly recommended.**

Course Description

This course is an introduction to the fundamentals of dimensional measurement, production gages, and gaging techniques. Interpretation of geometric tolerances will also be covered, with respect for their implications for inspection. Measurement techniques will emphasize proper use of and setup of equipment including hand tools, gage blocks, sine bars and sine plates, surface plates, and accessories, analog and digital measuring devices, surface profilometers, precision levels, optical comparator, measuring microscope, protractors, pneumatic gages, coordinate measuring machines and articulating arm portable measuring systems. It also provides a basic understanding of various metrology terms and concepts.

This course is a required course for students pursuing an AAS in the Metrology/Quality program..

Program Outcomes Addressed by this Course:

Upon successful completion of this course, students should be able to meet the program outcomes listed below:

- A. Operate basic metrology equipment commonly used in a metrology facility comprised of dimensional, pressure, temperature, mass, torque, force, surface roughness, and other metrology measurement parameters.
- B. Learn aspects of a maintenance of a calibration system, including proper calibration techniques for common measuring and test equipment used within a facility.
- C. Summarize calibration results, and quality concepts, then communicate these to engineering customers and others.



QSTC 150 (Fundamentals of Dimensional Metrology)

Course Outcomes

In order to evidence success in this course, the students will be able to:

1. Demonstrate an understanding of laboratory safety practices and proper handling techniques of sensitive measuring and test equipment.

Program outcomes linked:

- A. Operate basic metrology equipment commonly used in a metrology facility comprised of dimensional, pressure, temperature, mass, torque, force, surface roughness, and other metrology measurement parameters.

2. Demonstrate an ability to determine when and how to correctly use the various measuring and test equipment types.

Program outcomes linked:

- A. Operate basic metrology equipment commonly used in a metrology facility comprised of dimensional, pressure, temperature, mass, torque, force, surface roughness, and other metrology measurement parameters.

3. Calibrate, and adjust measuring and test equipment.

Program outcomes linked:

- A. Learn aspects of a maintenance of a calibration system, including proper calibration techniques for common measuring and test equipment used within a facility.

4. Provide detailed descriptions of standards used to calibrate specific instruments, and also their accuracy requirements and limitations with emphasis on the following:

Program outcomes linked:

- A. Learn aspects of a maintenance of a calibration system, including proper calibration techniques for common measuring and test equipment used within a facility.
- B. Summarize calibration results, and quality concepts, then communicate these to engineering customers and others.

5. Indicate what the most likely limiting factors are that create uncertainties limiting the validity of calibrations of instruments, and also what might be accomplished to minimize these effects.

Program outcomes linked:

- A. Learn aspects of a maintenance of a calibration system, including proper calibration techniques for common measuring and test equipment used within a facility.
- B. Summarize calibration results, and quality concepts, then communicate these to engineering customers and others.



MONROE COUNTY
COMMUNITY COLLEGE

Course Outcome Summary

Required Program Core Course

QSTC 150 (Fundamentals of Dimensional Metrology)

6. Explain how metrology impacts industry by providing a description of the hierarchy of measurement primary standards in our world, from international primary standards to local organizations' field measurements. Name the seven fundamental measurement parameter.

Program outcomes linked:

- A. Learn aspects of a maintenance of a calibration system, including proper calibration techniques for common measuring and test equipment used within a facility.
- B. Summarize calibration results, and quality concepts, then communicate these to engineering customers and others.

7. Descriptions and Basic Understanding of various metrology terms and concepts.

Program outcomes linked:

- A. Summarize calibration results, and quality concepts, then communicate these to engineering customers and others.

Date Updated: 4/16/2019

By: Michael L. Taylor