



Division:	Industrial Technology	Area:	Quality Systems Technology
Course Number:	QSTC 150	Course Name:	Introduction to Metrology
Prerequisite:	MDTC 101 or MDTC 109 or MDTC 151 or MDTC 160 or MDTC 161		
Corequisite:	None		
Hours Required:	Class: 30	Lab: 30	Credits: 3

Course Description/Purpose

This course introduces the fundamentals of dimensional measurement, production gages and gaging techniques. Interpretation of geometric tolerances will also be covered with respect to their implications for inspection. Measurement techniques will emphasize proper use of open-setup equipment, including hand tools, gage blocks, surface plates and accessories, analog and digital measuring devices, optical comparator, pneumatic gages and coordinate measuring machines (CMM).

Major Units

- Interpreting geometric tolerances
- Systems of measurement
- Use and care of precision measuring devices
- Measuring features of size using instruments
- Measuring by comparison
- Measuring features of form
- Surface measurements

Educational/Course Outcomes

Student learning will be assessed by a variety of methods, including, but not limited to, quizzes and tests, journals, essays, papers, projects, laboratory/clinical exercises and examinations, presentations, simulations, portfolios, homework assignments, and instructor observations.

- Cognitive** Each student will be expected to *Identify/Recognize* . . .
- geometric tolerances and their meanings
 - the meaning of precise, accurate and reliable
 - the application and use of English and metric measurement systems
 - the meaning of traceability
 - the mathematical basis for gage block series
 - the applications for gage blocks
 - the difference between direct measurement and comparison measurement
 - applications for pneumatic measurement
 - the role of calibration
 - applications of surface metrology

- Performance** Each student will be expected to *Demonstrate/Practice* . . .
- use graduated scales within recognized limitations
 - read vernier instruments
 - read micrometer instruments
 - combine gage blocks for any desired dimension
 - make comparison measurements using analog and digital instruments
 - flatness, perpendicular and angularity measurements
 - evaluate surface texture and roundness

QSTC150-1/04:MM:cs
Updated to 2006 Catalog 6/06