Sinclair Community College
444 E. Third St.
Dayton, OH 45402

Master Syllabus

OPT 1100 - Tooling & Machining Metrology

Division: Science, Mathematics and Engineering

Department: Operations Technology

Credit Hour Total: 2.0 **Lecture Hrs:** 1.0 **Lab Hrs:** 3.0

Date Revised: June 2015

Course Description:

Various measurement techniques involving shop measuring instruments; correct use and care of basic inspection instruments; interpretation of blueprints as well as machined products related to engineering needs. Introduction to Coordinate Measuring Machines (CMM). One classroom, three lab hours per week.

General Education Outcomes:

- Oral Communication
- Written Communication
- Critical Thinking/Problem Solving
- Values/Citizenship/Community
- Computer Literacy
- Information Literacy

Course Outcomes:

Metrological Terms and Procedures
Define, explain and demonstrate knowledge of terms and procedures as they are used in metrology.

Assessment Method: Locally developed exams
Performance Criteria: Correctly define 80% of metrological term

Engineering Prints and Parts Requirements
Read and interpret engineering prints and parts requirements.

Assessment Method: Locally developed exams
Performance Criteria: Correctly interpret engineering prints 80% of the time

Conventional Measuring Tools
Demonstrate use of conventional measuring tools such as rules, scales, calipers, micrometers, height & depth gauges, optical & pneumatic comparitors, gauge blocks, electronic measurement equipment, profilometers, optical flats and coordinate measuring machines to measure various preselected items and compare to known values.

Assessment Method: Simulations
Performance Criteria: Demonstrate correct and accurate use of conventional measuring tools 90% of the time.

Outline:

Rules, scales, decimals and fractions
Dimensioning, print reading and interpretati
Calipers: bow, dial,vernier and digital
Micrometers - English, Metric, vernier and I/O depth
Height gauges, surface plate, direct and comparative
Gauge Blocks - calibration, comparison
Optical comparator
Hardness and finishes evaluation
Basic introduction to Coordinate Measurement machines (CMM)