

MFG 133 : QUALITY ASSURANCE

Transcript title

Quality Assurance

Credits

3

Grading mode

Standard letter grades

Total contact hours

90

Lab hours

90

Prerequisites

instructor approval.

Recommended preparation

MFG 100.

Course Description

An introductory quality control course that includes precision and semi-precision measuring, digital measuring tool operations, measuring practice using digital gauges, micrometers, depth gauge and height gauge measuring tools. The course also includes an introduction to statistical process control and pneumatic gauging topics.

Course learning outcomes

1. Use semi-precision tools to make basic measurements.
2. Use digital tools to make precision measurements.
3. Use a sine bar and precision gage blocks to setup and measure work with accuracy of one ten-thousandth.
4. Use a surface plate and digital height gage to perform work piece measurements.
5. Create and follow part measuring documentation when measuring work.
6. Use MIL-spec procedures and methods to perform an outside micrometer caliper tool calibration.
7. Setup and capture electronic digital measurement data on a personal computer.
8. Setup and perform semi-automatic measurement using a modular gauge to with accuracy of one thousandth.
9. Create inspection reports which reflect part inspection results.
10. Use dimensional gauging tools to collect statistical process control data.
11. Interpret and use statistical process control charts.
12. Use statistical process control to problem solve a manufacturing process.

Content outline

1. Basic measurements
2. Semi-precision measuring tools

3. Precision measuring tools
4. Introduction to SPC
5. Control chart analysis and problem solving
6. Locational and orientation tolerances
7. Introduction to digital tools
8. Sine bar and precision gage block setups
9. Surface plate measurements
10. Optical Comparator measurements
11. CMM measurement
12. Part measuring and documentation
13. Precision tool calibration using MIL-spec procedures
14. Measurement data capture
15. Modular gauging techniques
16. Creating inspection reports

Required materials

Requires textbook and special gear, see syllabus for details.