



Syllabus

ADM 200 Foundations in Advanced Manufacturing - Quality

General Information

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Course Prefix ADM

Course Number 200

Course Title Foundations in Advanced Manufacturing - Quality

Course Information

Catalog Description This course is designed to serve those interested in entering the workforce for advanced manufacturing, incumbent workers of local companies, secondary HS seniors for technical skills development and apprentices in the local area that are required to gain related instruction for their DOL Occupation. The content of this course prepares students to safely step into a production-based workplace and enter into additional coursework for advanced manufacturing. The content includes: participating in periodic internal quality audit activities, checking calibration of gauges and other data collection equipment, suggesting continuous improvements, inspecting materials and product/process at all stages to ensure they meet specifications, documenting the results of quality tests, communicating quality problems, taking corrective actions to restore or maintain quality, recording process outcomes and trends, identifying fundamentals of blueprint reading, and using common measurement systems and precision measurement tools.

Credit Hours 3

Lecture Contact Hours 3

Lab Contact Hours 2

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

None

Co-requisites

ADM 100

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed categories

None

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Vitality, Inquiry, Perseverance, and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Practice interpretation of multi-view drawings, assembly drawings and fasteners, and geometric dimensioning and tolerancing as they apply to part shapes, part hole sizes and locations, part features, part dimensions, and part section features.
2. Perform measurements using tools (e.g. tape measure, ruler, dial/digital calipers, micrometer) to develop skills necessary for quality part inspection.
3. Interpret the types, applications and concepts relating to statistical process control, control charts, X bar and R charts, and histograms.
4. Perform continuous improvement methods (e.g. apply root cause failure analysis, construct/analyze Pareto charts, use brainstorming and fishbone diagram to solve production problems and apply corrective and preventative actions).
5. Describe Lean Six Sigma aspects of production quality systems (e.g. types of quality management systems, ISO 9000 standards, cycles, concepts, audits and inspections).

Outline of Topics Covered

- **Blueprint Reading (Multi-view drawings):** Reading multi-view drawings to visualize part shapes, identify features, and identify dimensions
- **Blueprint Reading (Assembly Drawings and Fasteners):** Reading drawings to determine part hole sizes and locations, scales, title blocks, part section features,

and fastener sizes

- **Blueprint Reading (GD&T):** Interpretation of part dimension tolerances, geometric dimensioning and tolerancing (GD&T) symbols and frames, and datums
- **Basic Measurement:** Interpret English and S.I. measurements; perform system conversion; use tape measures and rulers; accuracy and repeatability
- **Precision Measurement Tools:** Making precision measurements using dial calipers, digital calipers and micrometers
- **Dimensional Gauging:** Gauging parts using dial indicators, digital indicators, and data acquisition software; calibration of instruments; part mastering
- **Quality Systems:** Quality system elements, definition of quality, ISO9000 standard, types of quality management systems, PDCA cycle, continuous improvement concepts, audits, inspections
- **Work Area Safety:** Concepts of statistical process control, calculate mean, range, construct and analyze histograms, determine and interpret Cpk
- **Introduction to SPC:** Types and application of control charts; construct and analyze a X bar and R chart
- **Control Charts:** Types and application of control charts; construct and analyze a X bar and R chart
- **Continuous Improvement - 1:** Applications of root cause failure analysis; construct and analyze Pareto charts; use brainstorming and fishbone diagrams to solve production problems, apply corrective and preventive action

Program Affiliation

This course is not required as a core course in any programs.