



MONROE COUNTY
COMMUNITY COLLEGE

Course Outcome Summary

Required Program Core Course

QSTC 120 (Introduction to Quality Systems)

Course Information

Division	ASET
Contact Hours	45
Theory	45
Lab Hours	0
Total Credits	3

Prerequisites **MATH 119**

Course Description

This course is designed to provide students with a working knowledge of the major systems of a modern industrial quality assurance program. Students will examine opportunities for quality improvement through the implementation of lean systems and mistake/error proofing. Emphasis will be placed on quality engineering elements dealing with quality planning, corrective and preventive action, measurement and continual improvement. Techniques used are relevant in manufacturing and service organizations.

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. Collect quality related data; then interpret measurement output and graphic data by use of SPC tools and the performance of Cp and Cpk analysis.
- B. Summarize calibration results, and quality concepts, then communicate these to engineering customers and others.
- C. Acquire and analyze measurement and other data using appropriate statistical methods to facilitate process analysis and improvement.
- D. Develop, operate, and manage quality control systems, including management of resources and customer relations



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Course Outcomes

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

1. Be able to define Quality, Quality Control, quality improvement, statistical quality control, quality assurance, and process.

Program outcomes linked:

- D. Develop, operate, and manage quality control systems, including management of resources and customer relations

2. Know differences between value added and non value added activities, know types of waste and their categories, describe lean fundamentals and be able to implement them, and construct a value stream map.

Program outcomes linked:

- D. Develop, operate, and manage quality control systems, including management of resources and customer relations

3. Understand six sigma statistics, describe and know the advantages of DMAIC methodology.

Program outcomes linked:

- D. Develop, operate, and manage quality control systems, including management of resources and customer relations

4. Understand reliability, probability distributions, failure curves, and reliability curves as factors of time. Calculate normal, exponential, and Weibull failure rates, understand different types of test design, and the concepts of availability and maintainability.

Program outcomes linked:

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5. Describe why, forced field and nominal group problem solving tools and techniques. Know how to develop and utilize, affinity, interrelationship, tree, matrix, and activity network diagrams, and also prioritization matrices, and a process decision program chart.

Program outcomes linked:

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D. Develop, operate, and manage quality control systems, including management of resources and customer relations

6. Understand the concept of hypothesis testing, determine significant factors using the t test and the F test, calculate point and interval estimates, understand the concept of fraction factorials.

Program outcomes linked:

- A. Collect quality related data; then interpret measurement output and graphic data by use of SPC tools and the performance of Cp and Cpk analysis.
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7. Know the loss functions and calculate the four types. Understand orthogonal arrays with degrees of freedom, linear graphs and interactions. Know and calculate the three types of signal to noise ratios. Understand parameter design and calculate strong factors and levels. Understand tolerance design concepts including percent contribution.

Program outcomes linked:

- A. Collect quality related data; then interpret measurement output and graphic data by use of SPC tools and the performance of Cp and Cpk analysis.
- C. Acquire and analyze measurement and other data using appropriate statistical methods to facilitate process analysis and improvement.
- D. Develop, operate, and manage quality control systems, including management of resources and customer relations.

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By: Mike Taylor