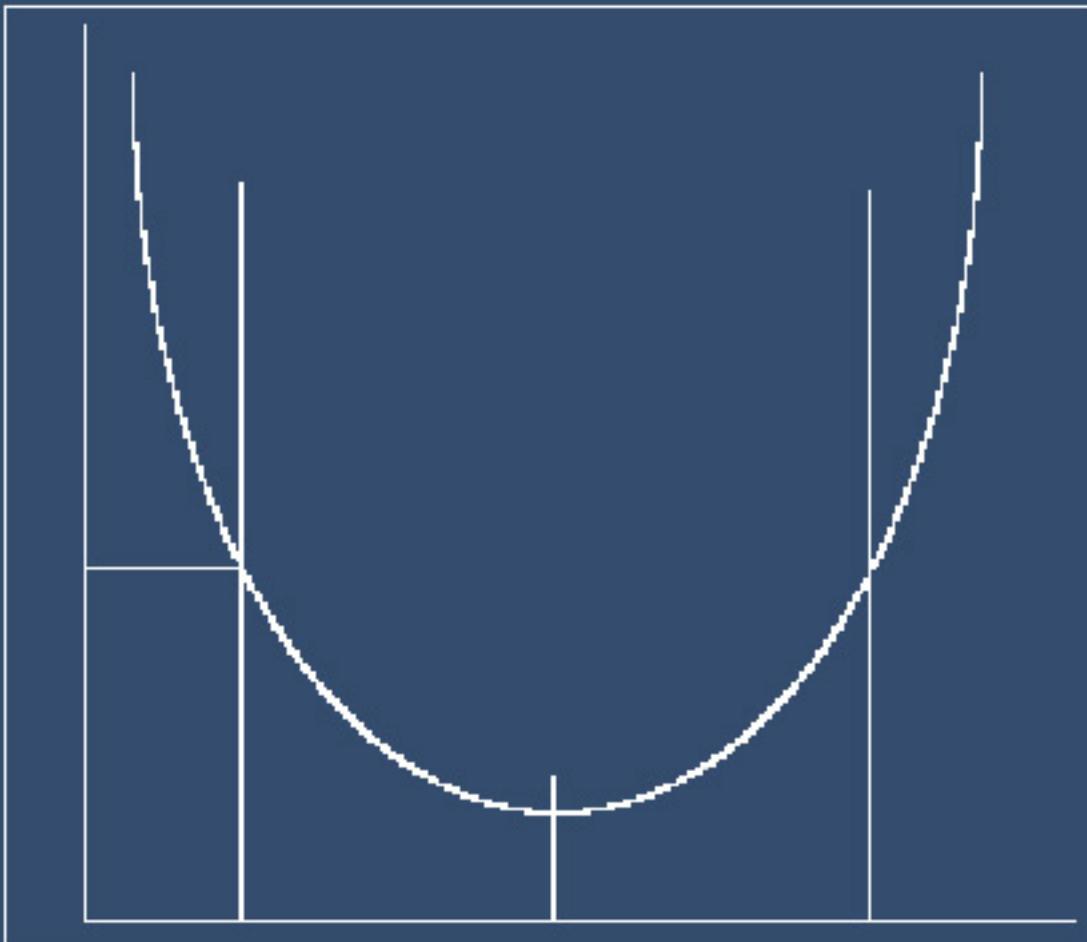


QUALITY ENGINEERING



Quality Engineering Curriculum

VR Data Systems offers our Quality Engineering Curriculum to any individual who is seeking certification in quality engineering from the American Society for Quality (ASQ). All courses in this curriculum are offered as a starting point for preparation for certification or for those who simply need a refresher of any concepts covered in the exam. Our courses will provide an in-depth understanding of quality engineering and will allow participants to immediately apply these concepts at work or in preparation for the exam. Students will learn through practical applications, and are welcome and encouraged to use challenges from their own profession as learning tools during class discussions.

NOTE: While classes in this curriculum offer in-depth coverage of most topics in the CQE exam, further self-study and preparation, as well as professional experience, is still required to pass the CQE exam.

Courses

| Code | Course Title | Length | Tuition |
|---------|---|--------|---------|
| QEC-540 | Quality Systems, Management and Improvement | 4 Days | |
| QEC-545 | Planning and Control Techniques | 1 Day | |
| QEC-550 | Sampling and Measurement | 1 Day | |
| QEC-555 | Reliability and Risk Management | 1 Day | |
| QEC-560 | Statistical Concepts, Methods and Applications for the Quality Engineer | 4 Days | |

Customized Courses

VR Data Systems will customize any course(s) to suit the unique business requirements of our clients. From the modification of standard curriculum to new course development, we will provide the education and training your organization needs to be more productive in today's competitive environment. Ask a VR Data Systems representative for more information.

In addition, VRDS will work within your busy schedule to accommodate your time frames and deadlines. For example, we can split up any multiple-day course into individual one-day sessions that can be held on any weekday and/or weekend, or even conduct half-day sessions during morning, afternoon or evening hours.

About VR Data Systems, Inc.

VR Data Systems, Inc. (VRDS) is a training and consulting firm that specializes in Quality, Statistics, and Data Analysis. For more than 15 years, we have offered comprehensive, hands-on curricula for professionals at any experience level in numerous industries, including Pharmaceutical, Clinical, Manufacturing, Financial, and Software & Hardware Development. Our courses are taught by seasoned instructors who possess long-term expertise in their respective fields – from Sales and Marketing to Finance and R&D.

Quality Engineering Curriculum

QEC-540 Quality Systems, Management and Improvement

Length: 4 days

Tuition:

Course Goal

Upon completion of this course, the student will understand concepts and methodologies for quality management and leadership, quality systems, development and verification, and problem solving and quality improvement as given in the body of knowledge for certification for Quality Engineering (CQE) by the American Society for Quality (ASQ). This course covers sections I, II and V of the CQE body of knowledge.

Course Description

This course teaches participants how to establish clear-cut quality standards and enforce adherence in a consistent manner. Students gain a fundamental understanding of quality philosophies and principles (Juran, Deming, Crosby), along with quality systems, methods, tools, standards, customer expectations and satisfaction, supplier relations and leadership. In addition, students are educated on the audit process and learn to develop and implement quality programs, including tracking, analyzing, reporting and problem solving. Finally, students are taught how to leverage problem-solving and quality improvement tools and techniques, including Affinity diagrams, Tree diagrams, PDPC, Matrix diagrams, Interrelationship digraphs, Prioritization matrices and Activity Network diagrams, as well as methods on overcoming barriers to quality improvements.

Broad Topics

- Quality philosophies and approaches
- Management systems for improving quality
- Leadership and facilitation principles and techniques
- Strategic quality management
- Organizational impacts of strategic quality management
- Training for quality
- Cost of quality
- Customer relations, expectations, needs and satisfaction
- Supplier relations and management methodologies
- Elements of a quality system
- Documentation systems
- Domestic and international standards and specifications
- Quality audits
- Quality approaches
- Process improvement
- Quality tools
- Quality management tools
- Corrective and preventive action

Target Audience

Any individual who is seeking to be certified for Quality Engineering (CQE) by the American Society for Quality (ASQ).

Prerequisites

None.

Contact VRDS

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<http://www.vrds.com>

Quality Engineering Curriculum

QEC-545 Planning and Control Techniques

Length: 1 day

Tuition:

Course Goal

Upon completion of this course, the student will understand concepts and methodologies for planning product and service development and material control as given in the body of knowledge for certification for Quality Engineering (CQE) by the American Society for Quality (ASQ). This course covers sections III-A and III-B of the CQE body of knowledge.

Course Description

This course teaches students how to plan, control, and assure product and process quality in accordance with quality principles. This includes planning processes, defect seriousness classifications, design inputs and reviews, inspections, blueprints and related definitions, and nonconforming material flow charts.

Broad Topics

- Classification of quality characteristics
- Design inputs and design review
- Verification and validation
- Inspections
- Interpretation of technical drawings and specifications
- Blueprints
- Determining product and process control methods
- Material identification, status and traceability
- Material control
- Sample integrity
- Material segregation
- Material review board (MRB)

Target Audience

Any individual who is seeking to be certified for Quality Engineering (CQE) by the American Society for Quality (ASQ).

Prerequisites

None.

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Quality Engineering Curriculum

QEC-550 Sampling and Measurement

Length: 1 day

Tuition:

Course Goal

Upon completion of this course, the student will understand concepts and methodologies for acceptance sampling and measurement systems as given in the body of knowledge for certification for Quality Engineering (CQE) by the American Society for Quality (ASQ). This course covers sections III-C and III-D of the CQE body of knowledge.

Course Description

This course teaches students about sampling, including how to interpret the OC curve, Average Outgoing Quality Limit (AOQL), AQL conversion charts, and single, double and multiple sampling. They will also learn about different units of measurement, measuring instruments, uses of different types of gauges, basic NDT techniques, non-destructive testing comparison, and different kinds of testing techniques, as well as force measurement and calibration.

Broad Topics

- Sampling principles
 - Producer's and consumer's risk
 - Operating Characteristic (OC) curves
 - Attributes and variables sampling plans
 - Single, double, multiple, sequential and continuous sampling
- Measurement
 - Measurement tools
 - Non-destructive testing
 - Force measurement
 - Calibration

Target Audience

Any individual who is seeking to be certified for Quality Engineering (CQE) by the American Society for Quality (ASQ).

Prerequisites

None.

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Quality Engineering Curriculum

QEC-555 Reliability and Risk Management

Length: 1 day

Tuition:

Course Goal

Upon completion of this course, the student will understand concepts and methodologies for reliability and risk management as given in the body of knowledge for certification for Quality Engineering (CQE) by the American Society for Quality (ASQ). This course covers section IV of the CQE body of knowledge.

Course Description

Students are taught reliability, maintainability and risk management, including key terms and definitions, modeling, systems design, assessment tools, "Bathtub curve" and stress-strength interference.

Broad Topics

- Reliability life characteristic concepts
- Design of systems for reliability
- Series and parallel reliability
- Life-history curve
- Reliability and maintainability
- Maintainability and availability
- Reliability failure analysis and reporting
- Failure rate/MTBF
- Hazard assessment tools
- Failure mode and effects criticality analysis (FMECA)
- Fault-tree analysis (FTA)

Target Audience

Any individual who is seeking to be certified for Quality Engineering (CQE) by the American Society for Quality (ASQ).

Prerequisites

None.

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Quality Engineering Curriculum

QEC-560 Statistical Concepts, Methods and Applications for the Quality Engineer

Length: 4 days

Tuition:

Course Goal

Upon completion of this course, the student will understand concepts and methodologies for quantitative methods as given in the body of knowledge for certification for Quality Engineering (CQE) by the American Society for Quality (ASQ). This course covers section VI of the CQE body of knowledge.

Course Description

This course teaches students how to acquire and analyze data using appropriate standard quantitative methods across a spectrum of business environments to facilitate process analysis and improvements. Participants become familiar with field terminology and concepts such as a statistic, parameters, levels of measurement, analysis of variable and attribute data, data coding, measures of central tendency and dispersion, process capability and control charts, sample size, normal t chi-squared and F tests, confidence intervals, power and risk factors, nonparametric techniques, DOE, types of design, Taguchi approach, ANOVA and regression models.

Broad Topics

- Concepts of probability and statistics
- Collecting and summarizing data
- Graphical methods
- Discrete distributions
- Continuous distributions
- Point and interval estimation
- Hypothesis testing
- Analysis of variance
- Contingency tables
- Simple and multiple least-squares linear regression
- Basic time-series analysis
- Planning and organizing experiments
- Taguchi robustness concepts
- Statistical Process Control (SPC)
- Analyzing process capability

Target Audience

Any individual who is seeking to be certified for Quality Engineering (CQE) by the American Society for Quality (ASQ).

Prerequisites

None.

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