National Fire Academy

R0158 – Emergency Medical Services: Quality Management
Version: 1st Edition, 8th Printing, January 2023
Quarter:
ACE Credit: In the upper-division baccalaureate degree category, 3 semester hours in emergency medical services (EMS) administration, public safety administration or fire science administration.
IACET Continuing Education Units: 3.4

Length of Course: 6 Days (33 hr., 35 min. contact hours, Sunday – Friday)
Prerequisite: Yes
Curriculum: Emergency Medical Services
Training Specialist: Michael Stern
Instructor:
Instructor email/phone:
Classroom: J-
Meeting Time: 8 AM – 5 PM

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Course Description (Catalog)

R0158 – "Emergency Medical Services: Quality Management." This 6-day course will provide the critical components, background and principles associated with the implementation, or enhancement, of a department's Quality Management Program.

Students will learn how to create, implement and maintain a Quality Management Program, including historical examples, current models, and best practices of quality assurance and improvement, process improvement, and data collection and analysis.

Throughout the course, students work on culminating activities relating to the development of a Quality Management Program. Students present the activity with classmates and instructors at the end of the course, allowing all students to take examples of Quality Management Programs to their departments.

Student Qualifications (Primary and Secondary Audience)

Individuals who have department-level quality management (quality assurance, quality improvement), oversight or supervisory responsibilities.

Course Scope (Goal)

This course seeks to provide a framework to improve the quality of emergency medical services (EMS) in students' agencies.

Course Objectives (Course Learning Outcomes – TLOs)

After successfully completing this course, you will be able to accomplish the following:

- Orient to the course sequence and content.
- Describe the cognitive map of process improvement methodology.
- Describe the history of Quality Management (QM).
- Analyze several QM models.
- Analyze the environment as it relates to the scope of Quality Management (QM).
- Describe the attributes of a quality culture.
- Differentiate between organizational improvement and process improvement.
- Identify the goal of each step in the Define, Measure, Analyze, Improve, and Control (DMAIC) method.
- Write a performance improvement project charter.
- Document a current process.
- Analyze factors that affect output.
- Test an improvement intervention.
- Implement steps to monitor and maintain performance.
- Develop a Quality Management (QM) plan.
- Determine strategies for change management.

Course Delivery Method

The National Fire Academy (NFA) offers specialized training courses and advanced management programs of national impact in an academic classroom environment [on campus at the National Emergency Training Center (NETC) in Emmitsburg, Maryland](). This classroom course is designed for the national level fire/emergency medical services (EMS) officer from State and local fire/EMS service organizations. During this 6-day delivery, students will reside in dormitories provided on campus with classes conducted in classrooms designed for critical student/instructor interaction. All course materials are designed for interactive classroom environments, in either paper notebook or electronic formats.

Course Schedule

The purpose of the course schedule is to give you, at a glance, the required preparation, activities, and evaluation components of your course.

DAY 1	DAY 2
Unit 1: Introduction Activity 1.1: Student Introductions	Unit 4: Culture of Quality Activity 4.1: Cultural Differences
Break	*Break*
Unit 2: History and Quality Management Models Activity 2.1: High Quality Versus Low Quality	Unit 4: Culture of Quality (cont'd) Unit 5: Organizational Improvement
Lunch Break	*Lunch Break*
Unit 2: History and Quality Management Models (cont'd) Activity 2.2: Using Models	Unit 5: Organizational Improvement (cont'd)
Break	*Break*
Unit 3: Scope of Quality Management Activity 3.1: Identifying Stakeholders Activity 3.2: Needs Assessment	Unit 5: Organizational Improvement (cont'd)

Day 1 Evening Assignments:
A. Needs Assessment ("Define", U3, U7)
B. Self-Assessment (U5)

Day 2 Evening Assignments:
A. Cultural Issues (U4)
B. Reading: "Body Ritual Among the Nacirema" (U4)
C. Activity 5.1: Web-based Injury Statistics Query and reporting System

Note: This schedule is subject to modification by the instructors and approved by the training specialist.

DAY 3	DAY 4
Unit 6: Introduction to the DMAIC Method	Unit 8: The DMAIC Method — "Measure" Phase (cont'd) Activity 8.4: Build a Performance Indicator
Break	*Break*
Unit 7: The DMAIC Method — "Define" Phase Activity 7.1: Write a Project Charter	Unit 9: The DMAIC Method — "Analyze" Phase Activity 9.1: What Will Affect the Measure of CTQ?
Lunch Break	*Lunch Break*
Unit 8: The DMAIC Method — "Measure" Phase Activity 8.1: Voice of the Customer Analysis — Nominal Group Technique	Unit 9: The DMAIC Method — "Analyze" Phase (cont'd) Unit 10: The DMAIC Method — "Improve" Phase
Break	*Break*
Unit 8: The DMAIC Method — "Measure" Phase (cont'd) Activity 8.2: Build a SIPOC Diagram Activity 8.3: Build a Value Stream Timeline Diagram	Unit 10: The DMAIC Method — "Improve" Phase (cont'd) Activity 10.1: Identify a Process for Improvement Using the Five Areas of Error-Proofing

Day 3 Evening Assignments:
A. Project Charter ("Define", U7)

Day 4 Evening Assignments:
A. Build a Performance Indicator ("Measure", U8)
B. Build a Cause and Effect Diagram" (Analyze", U9)

DAY 5	DAY 6
Unit 10: The DMAIC Method — "Improve" Phase (cont'd) Activity 10.2: Improving an Emergency Medical Service Customer Experience	Quality Management Plan Project Summary Presentation
Break	*Break*
Unit 10: The DMAIC Method — "Improve" Phase (cont'd) Activity 10.3: Heat Exhaustion Scenario Activity 10.4: Choose an Experimental Design	Quality Management Plan Project Summary Presentation
Lunch Break	*Lunch Break*
Unit 11: The DMAIC Method — "Control" Phase Activity 11.1: Failure Modes and Contingency Planning	Quality Management Plan Project Summary Presentation Graduation
Break	*Break*
Unit 12: Implementing the Quality Management Plan Activity 12.1: Obstacles to Implementation	

Day 5 Evening Assignments:
A. Design an Intervention ("Improve", U10)
B. Finish preparation for Quality Management Plan Project Summary Presentation

Course Resources (Instructional Materials)

In order to be fully prepared, obtain a copy of the required textbooks and other instructional materials prior to the first day of class.

Required Readings

The student must complete required readings during the course to be able to thoughtfully participate in discussions and activities.

None.

Suggested Reading/Resources

Suggested readings and resources are not evaluated, but may enhance the student's understanding, serve as additional sources for citation and promote discussion of course material.

None.

Required Resources (Course Textbook)

Student Manual.

Supplemental Resources (Supplemental Course Textbook)

None.

Grading Methodology (Evaluation Procedures)

Final Grade

The student's final grade for EMS Quality Management is comprised of a precourse assignment, evening assignments and a Quality Management Plan Project Summary.

Assignments: Precourse assignment and 7 homework/evening assignments up to 10 points each = 80 possible total.

Quality Management Plan Project Summary presentation: 20 points possible total.

Numerical Score	Letter Grade
100-90	A
89-80	B
79-70	C
69 or below	F

Evening Assignments

All evening assignments are individual assignments. Each evening assignment should be submitted via NFA Online Mediated Assignments or turned in first thing in the morning of the following day as identified by the instructors. The instructors will read and comment on students' work during the next day's class session. Instructors will remind students that they should upload their work onto the classroom shared drive if NFA Online Mediated is not being used. At the end of the course, students should download all of the other students' completed projects.

Criteria used to determine scores are outlined in the rubric.

Required Reading Assignments

Student completion of reading assignments will be done via evaluation of their class participation and will not be a separately graded activity.

Suggested Readings

Suggested readings are not evaluated, but may enhance the student's understanding and promote discussion of course material.

Course Outline

Unit 1: Introduction (Day 1)

Objectives

Terminal Objectives

The students will be able to:

1.1   Orient to the course sequence and content.

1.2   Describe the cognitive map of process improvement methodology.

Enabling Objectives

The students will be able to:

1.1   Describe the course sequence.

1.2   Provide an overview of the course content.

1.3   Describe the five steps of the Define, Measure, Analyze, Improve, and Control (DMAIC) process.

Unit 2: History and Quality Management Models (Day 1)

Objectives

Terminal Objectives

The students will be able to:

2.1   Describe the history of Quality Management (QM).

2.2   Analyze several QM models.

Enabling Objectives

The students will be able to:

2.1   Define QM terms.

2.2   Cite important milestones in QM history.

2.3   Analyze the strengths and weaknesses of the current QM models.

2.4   Analyze the strengths and weaknesses of the course QM model.

Unit 3: Scope of Quality Management (Day 1)

Objectives

Terminal Objective

The students will be able to:

3.1   Analyze the environment as it relates to the scope of Quality Management (QM).

Enabling Objectives

The students will:

3.1 Describe the advantages of multidisciplinary collaboration.

3.2 Determine the organizations and agencies involved in Emergency Medical Services: Quality Management (EMS: QM).

3.3 Analyze the role of outside agencies.

3.4 Identify the impact of laws and regulations.

3.5 Identify the impact of labor-management organizations.

3.6 Identify the impact of the political structure.

Unit 4: Culture of Quality (Day 2)

Objectives

Terminal Objective

The students will be able to:

4.1 Describe the attributes of a quality culture.

Enabling Objectives

The students will be able to:

4.1 Define the term "culture".

4.2 Differentiate between organizational culture and anthropological culture.

4.3 Indicate how organizational culture affects Quality Management (QM).

Unit 5: Organizational Improvement (Day 2)

Objectives

Terminal Objective

The students will be able to:

5.1 Differentiate between organizational improvement and process improvement.

Enabling Objectives

The students will be able to:

5.1   Identify the three phases of organizational improvement.

5.2   Describe the relationship between process improvement and organizational improvement.

5.3   Identify tools for organizational assessment and improvement.

5.4   Locate State statistics on death and injury.

5.5   Identify common causes of death and injury.

5.6   Use mapping process to determine injury and death statistics.

5.7   Identify the National EMS Information System (NEMSIS).

5.8   Describe the structure of NEMSIS.

5.9   Conduct a query of the current NEMSIS data.

Unit 6: Introduction to the DMAIC Method (Day 3)

Objectives

Terminal Objective

The students will be able to:

6.1   Identify the goal of each step in the Define, Measure, Analyze, Improve, and Control (DMAIC) method.

Enabling Objectives

The students will be able to:

6.1   Describe the steps in the DMAIC method.

6.2   List the tools they will apply in the DMAIC method.

Unit 7: The DMAIC Method--"Define" Phase (Day 3)

Objectives

Terminal Objective

The students will be able to:

7.1   Write a performance improvement project charter.

Enabling Objectives

The students will be able to:

7.1   Identify a problem or improvement opportunity.

7.2   Break down a large problem or opportunity into smaller parts.

7.3   Associate a problem or improvement opportunity with one or more specific processes.

7.4   Identify process customers.

7.5   Give financial and nonfinancial examples that illustrate the idea of "return on investment".

7.6   Write a problem statement.

Unit 8: The DMAIC Method--"Measure" Phase (Day 3)

Objectives

Terminal Objective

The students will be able to:

8.1   Document a current process.

Enabling Objectives

The students will be able to:

8.1   Identify customer needs.

8.2   Build a SIPOC diagram.

8.3   Build a value stream timeline.

8.4   Build a process performance indicator.

8.5   Interpret a statistical process control chart.

Unit 9: The DMAIC Method--"Analyze" Phase (Day 4)

Objectives

<u>Terminal Objective</u>

The students will be able to:

9.1   Analyze factors that affect output.

<u>Enabling Objectives</u>

The students will be able to:

9.1   Identify all factors that have an impact on performance.

9.2   Determine primary factors.

9.3   Create scatterplots.

9.4   Build a Pareto diagram.

9.5   Build a cause-and-effect diagram.

Unit 10: The DMAIC Method--"Improve" Phase (Day 4)

Objectives

<u>Terminal Objective</u>

The students will be able to:

10.1   Test an improvement intervention.

<u>Enabling Objectives</u>

The students will be able to:

10.1   Apply the basic principles of the scientific method to test changes.

10.2   Identify an appropriate experimental design to test an improvement intervention.

10.3   Determine when to use pilot testing as part of an improvement intervention.

10.4   Evaluate results of an improvement intervention to determine if it was effective.

Unit 11: The DMAIC Method--"Control" Phase (Day 5)

Objectives

Terminal Objective

The students will be able to:

11.1   Implement steps to monitor and maintain performance.

Enabling Objectives

The students will be able to:

11.1   Identify mechanisms for ongoing monitoring of performance.

11.2   Discuss the need for contingency plans in the event that performance deteriorates.

11.3   Define what should be archived for future reference.

Unit 12: Implementing the Quality Management Plan (Day 5)

Objectives

Terminal Objectives

The students will be able to:

12.1   Develop a Quality Management (QM) plan.

12.2   Determine strategies for change management.

Enabling Objectives

The students will be able to:

12.1   Identify obstacles to implementing processes.

12.2   Discuss strategies for marketing/selling their QM plans.

12.3   Describe future directions that have an impact on QM.

12.4   Cite key principles for catalyzing changes in their QM programs.

Policies

Class Attendance and Cancellation Policy

<u>**Attendance**</u>

- You are required to attend all sessions of the course. If you do not, you may not receive a certificate, and your stipend may be denied.

- If you need to depart campus early and miss any portion of the course and/or graduation, you must make the request in writing to the NFA training specialist. The training specialist, in collaboration with the superintendent, may waive the attendance requirement in order to accommodate you with extraordinary circumstances as long as you complete all course requirements. If you receive approval for departing early, you must forward the approval to the Admissions Office so your stipend reimbursement is not limited.

<u>**Student Substitutions**</u>

Substitutions for NFA courses are made from waiting lists; your department can't send someone in your place.

<u>**Cancellations or No-Shows**</u>

NFA's mission for delivery of courses is impaired significantly by cancellations and no-shows. It is very difficult and costly to recruit students at the last minute. Currently there is a two-year ban on student attendance for students who are no-shows or cancel within 30 days of the course start date without a valid reason. If you receive such a restriction, your supervisor needs to send a letter to our Admissions Office explaining the cancellation/no-show.

<u>**Course Failure**</u>

If you fail an on-campus course, you will not be issued a stipend for that course. You can reapply for the failed course or any other NFA course and go through the random selection process. You don't have to successfully complete the failed course before attending another NFA course.

<u>**Student Code of Conduct Policy**</u>

Students, instructors and staff are expected to treat each other with respect at all times. Inappropriate behavior will not be tolerated and may result in removal from campus and denial of stipends.

Writing Expectations

Student writing will conform to the generally accepted academic standards for college papers. Papers will reflect the original work of the student and give appropriate credit through citations for ideas belonging to other authors, publications or organizations. Student written work should be free of grammatical and syntax errors, free of profanity or obscene language or ideas, and reflect critical thinking related to the course subject matter.

Citation and Reference Style

Attention Please: Students will follow the APA, Sixth Edition as the sole citation and reference style used in written work submitted as part of coursework to NFA. Assignments completed in a narrative essay, composition format, abstract, and discussion posts must follow the citation style cited in the APA, Sixth Edition.

Late Assignments

Students are expected to submit classroom assignments by the posted due date (11:59 p.m. EDT/EST) and to complete the course according to the published class schedule. As adults, students, and working professionals, you must manage competing demands on your time. Discussion board postings submitted within 3 days after the submission deadline will receive up to a 20% deduction. Those that do not submit their discussion board postings within this timeline will receive a "0" grade for the week. Final assignment papers will not be accepted after the deadline. Any paper submitted after the deadline will receive a "0" grade for that assignment.

Netiquette

Online learning promotes the advancement of knowledge through positive and constructive debate – both inside and outside the classroom. Forums on the Internet, however, can occasionally degenerate into needless insults and "flaming." Such activity and the loss of good manners are not acceptable in a professional learning setting – basic academic rules of good behavior and proper "Netiquette" must persist. Remember that you are in a place for the rewards and excitement of learning which does not include descent to personal attacks or student attempts to stifle the forum of others.

- Technology Limitations. While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The NFA Online classroom may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-coding or other visual effects will not translate in your e-mail messages.

- Humor Note. Despite the best of intentions, jokes and especially satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add "emoticons" to help alert your readers: ;-), :), □ .

Disclaimer Statement

Course content may vary from the outline to meet the needs of this particular group.

Grading

Please review the following rubrics that explain how grades will be awarded.

Students who do not complete the entire course will be awarded an Incomplete (I) grade. In accordance with National Fire Academy academic policies, an Incomplete (I) grade must be removed by the end of the next semester following the course, or it automatically becomes a Failing (F) grade.

If you fail an on-campus course, you will not be issued a stipend for that course. You can reapply for the failed course or any other NFA course and go through the random selection process. You don't have to successfully complete the failed course before attending another NFA course.

http://www.usfa.fema.gov/training/nfa/admissions/student_policies.html

Academic Honesty

Students are expected to exhibit exemplary ethical behavior and conduct as part of the NFA community and society as a whole. Acts of academic dishonesty including cheating, plagiarism, deliberate falsification, and other unethical behaviors will not be tolerated.

Students are expected to report academic misconduct when they witness a violation. All cases of academic misconduct shall be reported by the instructor to the Training Specialist.

If a student is found to have engaged in misconduct and the allegations are upheld, the penalties may include, but are not limited to one or a combination of the following:

- expulsion,
- withholding of stipend or forfeiture of stipend paid,
- exclusion from future classes for a specified period; depending on the severity it could range from 1-10 years, and/or
- forfeiture of certificate for course(s) enrolled in at NETC.

Refer to NFA-specific Standard Operating Procedure 700.1 – *Academic Code of Conduct and Ethics* for more information.

Grading Rubrics

Criteria used to determine scores for homework assignments are outlined in the rubric below:

Criteria	Excellent	Marginal	Poor	Total
	Points 8-10	**Points 4-7**	**Points 1-3**	
Timely and Thorough	• On time submission. • Followed all directions.	• On time submission. • Followed most directions.	• Late submission or not turned in.	
Demonstration of Knowledge	• Assignment clearly demonstrate that readings/ assignments were understood and well incorporated into responses. • Correctly used terminology and concepts from course materials and lecture. • Displayed thinking on one of the highest levels: critical, evaluative, integrative, scientific, etc.	• Assignment indicated a basic understanding of readings and assignments.	• Lacked basic comprehension of subject matter.	
Writing	• No errors, or minor errors, in punctuation, grammar, and spelling. • Utilized professional writing skills. • Used and maintained a positive and constructive tone throughout assignment.	• Few errors, in punctuation, grammar, and spelling. • Utilized professional writing skills. • Used a positive and constructive tone somewhere in the assignment.	• Numerous errors, in punctuation, grammar, and spelling. • Failed to utilize professional writing skills. • Failed to use a positive and constructive tone in the assignment.	
Total				

Quality Management Plan Project Summary

The final project presentations are scored as follows based on Assignment 8:

Content Area	Good Points 3-4	Satisfactory Points 1-2	Unsatisfactory Points 0
Define	• Thoroughly identified a problem or improvement opportunity. • Thoroughly broke down a large problem or opportunity into smaller parts. • Associate a problem or improvement opportunity with specific processes. • Gave financial and nonfinancial examples that illustrate the idea of "return on investment." • Provided a clear problem statement.	• Identified a problem or improvement opportunity. • Broke down part of a problem or opportunity into smaller parts. • Associate a problem or improvement opportunity with specific processes. • Gave financial or nonfinancial examples that illustrate the idea of "return on investment." • Provided a problem statement.	• Failed to identify a problem or improvement opportunity. • Did not break down part of a problem or opportunity into smaller parts. • Did not discuss specific processes. • Gave no financial or nonfinancial examples that illustrate the idea of "return on investment." • Did not provide a problem statement.
Measure	• Identify customer needs. • Illustrated a process performance indicator. • Effectively discussed and interpreted a statistical process control chart.	• Identify customer needs. • Illustrated a process performance indicator.	• Failed to identify customer needs. • Failed to show a process performance indicator.
Analyze	• Identified all factors that have an impact on performance. • Determined all primary factors. • Included scatterplots, Pareto diagram or a cause-and-effect diagram.	• Identified some factors that have an impact on performance. • Determined most primary factors.	• Failed to identify factors that have an impact on performance. • Failed to determine primary factors.

Improve	• Applied the principles of the scientific method to test changes. • Used an appropriate experimental design to test an improvement intervention. • Correctly determined how to implement pilot testing as part of an improvement intervention. • Evaluated results of an improvement intervention.	• Applied some of the principles of the scientific method to test changes. • Used an experimental design to test an improvement intervention. • Discussed how to implement pilot testing as part of an improvement intervention.	• Did not apply any of the principles of the scientific method to test changes. • Did not use any experimental design to test an improvement intervention.
Control	• Identified mechanisms for ongoing monitoring of performance. • Discussed the need for contingency plans in the event that performance deteriorates. • Defined what should be archived for future reference.	• Identified mechanisms for ongoing monitoring of performance. • Discussed the need for contingency plans in the event that performance deteriorates.	• Failed to identify any mechanisms for ongoing monitoring of performance. • Failed to discuss the need for contingency plans in the event that performance deteriorates.
Total			

Instructors will share grade sheets and feedback, with the student after completion of the presentation and grading.

GRADING SHEET (IF NFA ONLINE IS NOT USED)

EMS Quality Management Gradesheet

Course Date: _____

Assignment: | Precourse | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | Problem Statement | Needs Assessement | Self Assessment (optional) | Cultural Issues | Project Charter | Performance Indicator | Cause-Effect Diagram | Intervention Design | Final Project Presentation | Final Grade |

Student:											

Assignment Points Key:

10   On time; assignment questions/tasks addressed with appropriate thoroughness and depth.

8   On time; assignment questions/tasks addressed with moderate depth and thoroughness.

6   Late; or assignment questions/tasks addressed with appropriate or moderate depth and thoroughness.

3   Late; and/or assignment questions/tasks addressed with minimal depth or thoroughness.

1   Late and incomplete.

0   Assignment not turned in.

Final Grade = Assignment total points + Final Project points

Instructor: _____   Instructor: _____