

Saint Leo University
MGT 410
Quality Improvement and Management

Course Description:

This course is an extensive coverage of quality management to include an understanding of quality principles; the integration of quality management, logistics management, and project management; knowledge of the effect of variation in manufacturing and service industries; quality assurance and acceptance management; the understanding and proficiency in the mechanics of statistical process control; and the follow-on statistical experimentation and testing to improve manufacturing and service processes.

Prerequisites:

MGT 309 and GBA 334

Textbooks:

Sower, V. E. (2011). *Essentials of quality: With cases and experimental exercises*. Hoboken, NJ: John Wiley & Sons Inc. ISBN: 978-0-470-50959-3

Business majors specializing in Project Management are also required to purchase the following:

Project Management Institute Inc. (2013). *Guide to project management body of knowledge* (5th ed.). Newton Square, PA: Author. ISBN: 978-1-935589-67-9

Learning Outcomes:

1. Master and integrate the guiding principles of quality management as an integral component of logistics systems to deliver an ever-increasing quality product to the customer, at ever-increasing levels of efficiency that reduce landed costs, at ever-faster delivery times.
2. Demonstrate the effect of variation in manufacturing and service industries.
3. Analyze and apply existing processes and apply the correct statistical process control techniques – X-bar and R – X-bar and S – p, binomial – np, binomial – and p, Poisson – charting methods to the processes under study.
4. Apply the process of quality assurance within the framework of quality systems that include: TQM, lean manufacturing, Six Sigma, and ISO-9000.
5. Set up and analyze manufacturing and service industry experiments to improve quality and apply statistical tests to include: difference of means testing, difference of variance testing, ANOVA, and Taguchi Orthogonal Arrays to verify process improvement.
6. Internalize and practice the Saint Leo Core Values of: excellence and integrity.

Core Values:

Excellence: Saint Leo University is an educational enterprise. All of us, individually and collectively, work hard to ensure that our students develop the character, learn the skills, and assimilate the knowledge essential to become morally responsible leaders. The success of our University depends upon a conscientious commitment to our mission, vision, and goals.

Integrity: The commitment of Saint Leo University to excellence demands that its members live its mission and deliver on its promise. The faculty, staff, and students pledge to be honest, just, and consistent in word and deed.

Evaluation:

Grading Scale:

Grade Score (%)

A	94-100
A-	90-93
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D+	67-69
D	60-66
F	0-59

Assignment	Weight
Discussion (8)	20%
Case Studies (3)	20%
Homework Sets (4)	20%
Quiz (4)	20%
Final Exam	20%
TOTAL:	100%

Discussion

Each module will include a discussion question assignment. The discussion questions may stem from the text, the AVP, or from independent internet searches. For each discussion question, you are required to post an initial response **no later than Thursday 11:59 PM EST/EDT**, as well as post substantial responses to at least two classmates **no later than Sunday 11:59 PM EST/EDT**.

Case Studies

There are 3 Case Studies in this course. Case Studies require the ability to assess the presented situation and then synthesize this information to make recommendations that minimize the risk for other organizations.

Click [Case Study Guidelines and Rubric](#) for assignment details.

The Case Studies are due **no later than Sunday 11:59 PM EST/EDT in Modules 3, 5, and 7**. (Each Dropbox basket is linked to Turnitin.)

Homework Sets

There are 4 Homework sets in this course. Within each homework set, assess your understanding of the important concepts presented in the course. Not only will this homework assignment help in your understanding of the key concepts, it will help you prepare for the Final Exam and ultimately for the opportunity to sit for the accreditation exams offered by APICS and/or the Supply Chain Council. Access the homework assignment in the module pages of the online classroom.

The Homework Sets are due **no later than Sunday 11:59 PM EST/EDT in Modules 2, 4, 6, and 8**. (Each Dropbox basket is linked to Turnitin.)

Quiz

There are 4 quizzes in this course consisting of short-answer and problem-based questions.

Complete the quizzes **no later than Sunday 11:59 PM EST/EDT in Modules 2, 4, 6, and 7**.

Final Exam

The final exam will test your knowledge of both the quantitative and qualitative aspects of quality improvement and management. Although few people enjoy final exams, this exam will help prepare you to sit for accreditation status with organizations like APICS or The Supply Chain Council.

Complete the Final Exam **no later than Sunday 11:59 PM EST/EDT of Module 8.**

Course Schedule:

Module 1 Introduction to Quality and Strategic Elements of Quality

Objectives

When you complete this module, you should be able to:

- Describe the development of quality as a discipline.
- Compare and contrast the leading approaches to defining quality.
- Explain strategic quality management.
- Evaluate ways to develop quality measures and metrics.

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Read Chapters 1 and 2	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT

Module 2 Quality Improvement and Management

Objectives

When you complete this module, you should be able to:

- Discuss Quality Function Deployment (QFD) and its role in product and service design.
- Evaluate Design for Six Sigma (DSS) and Taguchi robustness concepts.
- Evaluate the use the risk assessment tools of Fault Tree Analysis (FTA) and Failure Mode and Effects Analysis (FMEA).
- Explain the differences between radical and incremental improvement and discuss the risks associated with not being creative and innovative.

Assignments

Items to be Completed:	Due No Later Than:
Read Chapters 3 and 4	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework Set 1	Sunday 11:59 PM EST/EDT
Complete Quiz 1	Sunday 11:59 PM EST/EDT

Module 3 **Quality Systems and Quality Control**

Objectives

When you complete this module, you should be able to:

- Describe the elements of a quality management system.
- Compare the major quality auditing programs.
- Describe the basics of a quality information system, document control, and information flows.
- Explain different approaches to lot traceability.

Assignments

Items to be Completed:	Due No Later Than:
Read Chapters 5 and 6	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Case Study 1	Sunday 11:59 PM EST/EDT

Module 4 **Experimental Design**

Objectives

When you complete this module, you should be able to:

- Explain the characteristics of experimental design.
- Explain the use of full and fractional factorial experimental designs.
- Describe the use of analysis of variance (ANOVA) in analyzing experimental results.
- Explain Taguchi Methods for experimental design.

Assignments

Items to be Completed:	Due No Later Than:
Read Chapter 7	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework Set 2	Sunday 11:59 PM EST/EDT
Complete Quiz 2	Sunday 11:59 PM EST/EDT

Module 5 **Quality Improvement Tools and Inspection/Testing**

Objectives

When you complete this module, you should be able to:

- Describe the problem solving process.
- Explain the use of the PDSA and DMAIC cycles for continuous improvement.
- Evaluate the fundamentals of metrology.
- Differentiate and compare accuracy, reproducibility, and repeatability.

Assignments

Items to be Completed:	Due No Later Than:
Read Chapters 8 and 9	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Case Study 2	Sunday 11:59 PM EST/EDT

Module 6 **Statistical Process Control**

Objectives

When you complete this module, you should be able to:

- Explain the concept of the control chart and identify out-of-control signals on a control chart.
- Evaluate the appropriate control chart for specific applications and data types.
- Construct variable control charts: x-bar, range, s, individual/moving range, and Delta charts, attribute control charts: p, np, c, and u charts.
- Evaluate the appropriate measure for process capability and assess the capability of the in-control process to meet specifications.

Assignments

Items to be Completed:	Due No Later Than:
Read Chapter 10	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework Set 3	Sunday 11:59 PM EST/EDT
Complete Quiz 3	Sunday 11:59 PM EST/EDT

Module 7 **Acceptance Sampling and Quality Costs**

Objectives

When you complete this module, you should be able to:

- Describe how to use sampling theory to properly take samples from a process.
- Evaluate the risks in sampling plans and interpret the OC curve.
- Describe the four categories of quality costs.
- Evaluate the importance of integrating COQ with continuous quality improvement.

Assignments

Items to be Completed:	Due No Later Than:
Read Chapters 11 and 12	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Case Study 3	Sunday 11:59 PM EST/EDT
Complete Quiz 4	Sunday 11:59 PM EST/EDT

Module 8**Human Factors in Quality****Objectives**

When you complete this module, you should be able to:

- Evaluate the importance of human factors in quality.
- Evaluate the basics of group dynamics and approaches to conflict resolution.
- Describe the stages of group development and ways to move from one stage to the next.
- Describe professional and ethical standards in the quality field.

Assignments

Items to be Completed:	Due No Later Than:
Read Chapter 13	
View Audio Visual Presentation (AVP)	
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework Set 4	Sunday 11:59 PM EST/EDT
Complete the Final Exam	Sunday 11:59 PM EST/EDT