

Principles of Quality (PTAC 2314_3A1)

Credit: 3 semester credit hours (3 hours lectures)



MODE OF INSTRUCTION

Face to Face (Tuesday and Thursday)

Prerequisite: MATH 1332, PTAC 1302

Course Description

Study of the background and application of quality concepts. Topics include team skills, quality tools, statistics, economics and continuous improvement.

Course Objectives

Upon completion of this course, the student will be able to:

1. Use statistical process controls to collect, organize, and analyze data.
2. Describe the principles of quality control
3. Use quality tools

Instructor Contact Information

Instructor:	LG Williams
Email:	lwilliams4@lit.edu
Office Phone:	409-247-5355
Office Location:	T-4 Building (Copier Room)
Office Hours:	Monday and Wednesday 4:00 to 6:00

Required Textbooks and Materials

Quality Concepts for the Process Industry (ISBN: 978-1435482449)

Attendance Policy

1. Missing more than 20% of classes will result in an automatic "F" for the course.
2. Absences are counted for unexcused, excused and coming to class late.
3. Missing more than 20% of a class period will count as an absence.
4. Being tardy 3 times equals 1 absence.

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5. You are required to log on weekly to Blackboard three times per week and review the week's course material. Additionally, you are required to check your LIT emails weekly.
6. A quiz will be given at the beginning of every class. This will be used to take attendance, as well as a daily grade. If you miss a quiz, it cannot be made up. If you are late, you miss the questions. If you miss the quiz because you are tardy, it is your responsibility to let me know you are there. If not, you will be counted absent.
7. A student is absent if they are not physically in the classroom. An excused absence simply means that the student can make up any missed work.
8. Class attendance and participation is an individual student responsibility. Students taking traditional face-to-face courses are expected to attend class and complete all assignments by stated due dates. Excessive absences and tardies will be dealt with on a case-by-case basis.

Drop Policy

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar available on the LIT website otherwise the grade you receive in the course will impact your GPA.

Student Expected Time Requirement

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

Course Schedule

Date	Topic	Reference
01/21/2025	Orientation	Syllabi Test & Intro
01/23/2025	Why Quality is Important	Chapter 1
01/28/2025	How It All Began (Note: Plicker's Quiz on each chapter)	Chapter 2
01/30/2025	The Quality Gurus	Chapter 3
02/04/2025	The International Standards Organization	Chapter 4
02/06/2025	Total Quality Management	Chapter 5
02/11/2025	Online Test # 1 Review Chapters 1-5	Assignment 1
02/13/2025	Online Test #1	Chapters 1-5

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02/18/2025	Customer Satisfaction	Chapter 6
02/20/2025	Employee Empowerment	Chapter 7
02/25/2025	Teamwork and Teams	Chapter 8
02/27/2025	Communications	Chapter 9 & Assignment 2
03/04/2025	Personal Effectiveness	Chapter 10
03/06/2025	Online Test # 2 Review	Chapters 6-10
03/11/2025	Spring Break	
03/13/2025	Spring Break	
03/18/2025	Online Test #2 Chapters 6-10	Assignment 3
03/20/2025	The Economics of Quality	Chapter 11
03/25/2025	Quality as a System	Chapter 12
03/27/2025	Cost of Quality	Chapter 13
04/01/2025	Quality Tools (Part 1)	Chapter 14
04/03/2025	Quality Tools (Part 2)	Chapter 15 & Assignment 4
04/08/2025	Online Test # 3 Review	Chapters 11-15
04/10/2025	Online Test #3	Chapters 11-15
04/15/2025	Variation	Chapter 16
04/17/2025	Statistical Process Control	Chapter 17
04/22/2025	SPC and Control Charts	Chapter 18
04/24/2025	Process Capability & Epilogue	Chapters 19 & 20
	Online Test # 4 Review	Chapters 16-20
04/29/2025	Online Test #4	Chapters 11-15
05/01/2025	Final Exam Review	Chapters 1-20
05/06/2025	PTAC 2314 Final Exam	Chapters 1-20

Course Evaluation

Final grades will be calculated according to the following criteria;

Assignments	10%
Exams (4)	50%
Final	40%

Grade Scale

90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the [Student Catalog & Handbook](#).

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

Course Outline

- A. Why Quality is Important
 - a. Quality as a Competitive Tool
 - b. Quality Systems
 - c. The Quality Marathon
 - d. Defining Quality
 - e. The Way We Must Think
- B. How It All Began
 - a. Defining Quality
 - b. The Business Need for Quality
 - c. The First Heralds of Quality
 - d. Sarasohn's Systems Approach
 - e. Quantity Versus Quality
 - f. Modern Industrial Production
 - g. American Enters the Unending Marathon
- C. The Quality Gurus
 - a. W. Edwards Deming (1900-1993)
 - b. Joseph M. Juran (1904-2008)
 - c. Philip B Crosby (1926-2001)
 - d. The Japanese Gurus
 - e. Kaoru Ishikawa (1915-1989)
 - f. Genichi Taguchi (1924-)
 - g. Scenario
 - h. Two Infants Die After Getting Adult Doses
- D. The International Standards Organization
 - a. Products and Service Organization
 - b. How ISO Began
 - c. Standardization and Benefits
 - d. American Embraces ISO
 - e. Applying for an ISO Standard
 - f. Maintaining ISO Registration

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- g. From ISO 9000 to ISO 2000
- h. ISO 14000
- E. Total Quality Management
 - a. Total Quality Management
 - b. Barriers to TQM
 - c. Initiating TQM
 - d. TQM for Profit
 - e. Acceptable Quality Levels
 - f. Performance Levels
 - g. Quality Awards
- F. Customer Satisfaction
 - a. The Customer
 - b. What is a Customer
 - c. Dissatisfied Customers
 - d. Maintaining Customer Satisfaction
 - e. Beyond Customer Satisfaction
 - f. Company Growth and Customer Satisfaction
- G. Employee Empowerment
 - a. Employee Empowerment
 - b. Employee Development
 - c. Involvement and Empowerment
 - d. Motivation for Empowerment
 - e. Attitude and Behavior
- H. Teamwork and Teams
 - a. The Business Need for Teams
 - b. Developing the Team
 - c. Diversity
 - d. Becoming a Team Member
 - e. Teams for Continuous Improvement
 - f. Team Dynamics
- I. Communication
 - a. Communication
 - b. Methods of Communication
 - c. How to Ask Questions
 - d. Body Language and Gestures
 - e. Barriers to Effective Communication
- J. Personal Effectiveness
 - a. Employee Responsibilities
 - b. Motivation
 - c. Leadership
 - d. Organizational Aspects of the Human Relations System
- K. The Economics of Quality
 - a. What is Economics
 - b. The Marketplace Economy
 - c. Supply, Demand, and Prices
 - d. Competition
 - e. Innovation
 - f. Productivity
 - g. Industrial Economics and Cost Reduction
 - h. The Global Marketplace
 - i. Global Competition
- L. Quality as a System
 - a. Systems and Subsystems
 - b. The Process Unit as a System
 - c. Customers and Suppliers of the System
 - d. Requirements (the What Questions)
 - e. Quality as a System
- M. The Cost of Quality
 - a. Work
 - b. The War on Waste
 - c. The Cost of Quality (COQ)
 - d. The Measurement of Quality
- N. Quality Tools (Part 1)
 - a. Beginning Quality Improvement
 - b. The Scientific Approach
 - c. The Purpose of Quality Tools
 - d. Brainstorming
 - e. Check Sheets
 - f. Run Charts
 - g. Scatter Diagrams
 - h. Process Flowcharts
- O. Quality Tools (Part 2)
 - a. Pie Charts

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- b. Cause-and-Effect Diagrams (Fish Bone Diagrams)
 - c. Histograms
 - d. Pareto Charts
 - e. Control Charts
- P. Variation
- a. Variation in Processes
 - b. Process Variation as a Tool
 - c. Variation and Achieving Statistical Control
 - d. Shewhart and Deming on Variation
 - e. The Necessity of Control Charts
- Q. Statistical Process Control
- a. The United States and the Beginning of Statistical Process Control
- b. Histograms (Revisited)
 - c. The Normal Distribution
- R. SPC and Control Charts
- a. SPC and Control Charts
 - b. Statistics for SPC
 - c. Basic X bar and R Control Charts
 - d. Interpreting Control Charts
 - e. Test for Lack of Control
- S. Process Capability
- a. The Scientific Foundation of a Process Capability Study
 - b. Problems solved by Process Capability Studies
- T. Epilogue
- a. The Advantages of Quality

Course Policies

1. You must log onto Blackboard and access this course a minimum of three times per week.
2. No cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can and will be removed from the class for the semester. Cheating can result in expulsion from LIT.
3. If you wish to drop a course, the student is responsible for initiating and dropping the course. If you stop logging-in to the course and do not complete the course drop process, then you will receive an "F" grade for the course
4. Internet Usage – Students are expected to use proper net etiquette while participating in course emails, assignment submissions, and online discussions.
5. If a test is missed due to an emergency situation, the student will have one week to make it up; otherwise a grade of 0 will be assigned.
6. A student who wishes to drop a course is responsible for initiating and completing the drop process. A student who stops coming to class, and fails to drop the course, will earn an "F" in the course.

ADDITIONAL COURSE POLICIES/INFORMATION FOR MR. WILLIAMS:

STUDENT BEHAVIOR EXPECTATIONS

- Students are expected to be in the class room and ready for instruction at the beginning of the face-to-face class period. Habitual tardiness will be dealt with on a one-to-one basis and may lead to being marked absent.

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- Keep in mind that each student comes from a different background and brings with her/him a different set of beliefs and values.
- Disrespect for others will not be tolerated, online or face-to-face.

MY RESPONSE TIME

- I only return calls that leave a voicemail. I prefer emails though.
- The best way to reach me is through my LIT email, lwilliams4@lit.edu.
- I usually respond to emails within 24 hours unless the email is received after noon on Fridays, weekends, campus holidays or days when I am required to travel.

MY LIT EMAIL

- Not communicating with me because your LIT email is not working is not a valid reason for no response. LIT email is how we communicate with you. Get it working so you don't miss any important information (contact the help desk for assistance).
- I will email an announcement to your LIT email the first day of class. Please respond to it so we both know your LIT email is working.

MY BLACKBOARD MESSAGES

- Check the Send-to-Email box above Blackboard Messages text box if you want a faster response.
- If you use Blackboard Messages to contact me, and I don't respond within 24 hours, please send the same email message to my LIT email, lwilliams4@lit.edu

MY BLACKBOARD ANNOUNCEMENTS

- Announcements in Blackboard are posted to the Announcements web page that you see when you log into class. They are important, so be sure to read them.
- "I did not see it" is not an acceptable reason for missing an announcement!

MY TECHNOLOGY REQUIREMENTS

- Use Chrome or Firefox as your browser. Edge and Safari do not work well with Blackboard.
- If you do class assignments on a cell phone, a tablet, or a netbook, make sure you are seeing all assignments as they are presented on a desktop computer.
- Papers (assignments) are to be submitted using Microsoft Word or preferably,

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as a PDF. If one of these methods is not used, formatting problems are the responsibility of the student.

- Not having the correct technology, device or internet is not a valid excuse for not doing assignments or tests.
- Problems with Blackboard are to be addressed by the HELP DESK. I can only help you with content and understanding the material.

MY DUE DATE POLICIES

- All discussions, assignments, and tests have due dates. It is your responsibility to know the due dates and get material submitted on time.
- Late work is frowned on. Students may submit late work, but 10 points will be taken off for each class DAY that it is late.
- For students who were absent, the student must request the work and have until the next class period to turn it in. After the next class period, the work will be considered late and will have 10 points deducted for each class DAY that it is late.
- If a face-to-face test is missed due to an emergency situation, the student will have one week to make it up; otherwise a grade of 0 will be assigned. Absent students will receive the same test as those who took it on test day for the first missed test only. Missing more than 1 test will result in future test(s) being all free response answers.
- For online classes that are required to write papers; the papers must be submitted to SafeAssign to check for plagiarism (its automatic). In most cases, the student has 3 submissions to correct any problems. However, all submissions MUST be made by the due date.

MY GRADING POLICIES

- For face-to-face classes who have a quiz at the beginning of class; these quizzes cannot be made up. However, 3 lowest assignment grades will be dropped at the end of the semester. Fully online classes do not take these quizzes.
- I grade student work Monday through Friday during my office hours.
- All grades are recorded in Gradebook on Blackboard.
- It is the student's responsibility to make sure their grades on their work match their grades in Blackboard Gradebook. If there is a discrepancy, please contact me and be prepared to show the graded work if requested.
- Grading rubrics are available on writing assignments.

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- If Blackboard locks up or submits something early, I will only restart a test one time. The test must be started completely over. If it messes up again, the student will be required to come to my office and take a face-to-face test

MY ACADEMIC HONESTY AND PLAGIARISM POLICIES

- Academic honest is expected on all assignments. See LIT handbook for more information about academic honesty and the penalty for breaking academic honesty.
- Plagiarism is submitting someone else’s work, either published or not, as your own, and is not allowed.
- Plagiarism includes everything from using AI to write your writing assignments, patchworking sentences together from the internet, to using another class mates work. Because you are only required to write 2 pages, putting cited quotes is not allowed either. Please read the specific assignment for rules.
- All writing assignments are submitted to a plagiarism checker in Blackboard to be reviewed for plagiarism and AI content.
- Most writing assignments may be redone 2 times to reduce what is identified in SafeAssign. If the bibliography is cited, that will not result in points being deducted. Please read each assignment instructions for the particular policy on plagiarism for that specific assignment.
- Students who plagiarize or use AI may receive a 0 on the assignment or may receive an F for the entire course.

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