



**IET 619: Total Quality Control
Course Syllabus
FALL 2015**

Department of Engineering and Technology Management
School of Engineering and Information Systems
Morehead State University

Course Description

Total Quality Control, IET 619, 3-0-3 hours; on demand. Prerequisite: IET 419 or consent of the instructor. A study of techniques in Statistical Process Control and Quality Engineering and their impact on the quality, effectiveness, and competitiveness of products.

Instructor:

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Office Hours: Mon. & Wed.: 10.00AM – 11:00AM Tue. & Thurs.: 1.00PM – 2:00PM

Class Time and location: Mon. 6:00PM – 8:40PM in Lloyd Cassity Room 315.

Course Contents

This course is designed to introduce students to techniques in Total Quality Control and to examine their impact on productivity, quality, and competitiveness. The course is intended to help students utilize the concepts of Statistical Process Control and Quality Engineering in order to improve product's quality and competitiveness. Students will be encouraged to synthesize organizational management methods in Total Quality Management as related to productivity, effectiveness, and competitiveness of products and processes.

Reading Materials

Required Text

Aikens, C. H. (2011). *Quality Inspired Management, The Key to Sustainability*, Upper Saddle River, NJ: Prentice Hall; ISBN: 978-0-13-119756-5

*Pyzdek, T., & Keller, P. (2010). *Six Sigma Handbook: A Complete Guide for Green Belts, Black Belts, and Managers at All Levels*. McGraw-Hill, New York.

***MSU Library has online copies, so it is recommended that you contact the library.**

Supplementary Text

Besterfield, D. H., Besterfield-Michna, C., Besterfield, G. H., & Besterfield-Sacre, M. (2003). *Total Quality Management*, Upper Saddle River, NJ: Prentice Hall.

Course Objectives

At the conclusion of the course, student should be able to:

1. Realize the need for continuous improvement, and analyze various approaches to improving productivity and quality of products. **(Assessed by Individual Assignment 1 and Exam 1)**
2. Analyze methods of increasing productivity and quality in industrial organizations. **(Assessed by Discussion Board 2, Individual Assignment 2, and Exam 1)**
3. Analyze and employ Quality Improvement and Problem Solving techniques, such as PDCA/PDSA Cycle, DMAIC tactics, and Quality Function Deployment. **(Assessed by Individual Assignment 2, Case Studies, and Exam 1)**
4. Investigate and analyze the quality management techniques/approaches responsible for success or failure of organization. **(Assessed by Group Project)**
5. Conceptualize the importance of continuous improvement, employee involvement, and team-work approach in implementing a Total Quality Improvement program. **(Assessed by Group Project)**
6. Utilize tools and techniques of Total Quality Improvement including, statistical process control, control charts, and process capability techniques. **(Assessed by Individual Assignment 3, Exam 2, Group Project, and Final Exam)**
7. Analyze methods for effective Experimental Design and Contemporary Quality Engineering. **(Assessed by Individual Assignment 4, Research Paper, and Final Exam)**
8. Demonstrate skills of planning, organizing, and presentation as relates to Total Quality Improvement. **(Assessed by Student Portfolio, and Group Project)**

Course Requirements

1. **Personal Information Blog:** Students are to complete their personal information blog in Black board. Instructions for this assignment will be posted during the first week. The due for this assignment will be announced by the instructor.
2. **Discussion Board:** Students are required to participate constructively in all discussion board activities in order to earn the points assigned for discussion board activities. At the beginning of each week, the instructor will inform students of the due dates for discussion board. No posts to the discussion board will be accepted after the announced due date.
3. **Individual Projects/Assignments:** Each student will be required to submit weekly individual projects/assignments that will be assigned and posted by the instructor. Each individual project/assignment must be submitted on the specified due date. There will be one grading scale deduction from the assignment total grade for each delay week after the due date. Should a student need to miss an assignment, the instructor must be consulted beforehand. MSU's excused absences fall into five categories: 1) University sponsored activities; 2) Student/Family illness/death; 3) Military obligations; 4) Jury duty or subpoena for court appearances, or 5) Major religious holidays. (Competencies 1 – 4, 6 - 8).
4. **Exams:** There will be two (2) exams during the semester and a FINAL EXAM. There will be no makeup exams. To identify the students understanding of the topics covered, multiple-choice, true/false, and short essay questions will be used in the exams. There is no substitute for any exams. Should a student need to miss an exam, the instructor must be consulted beforehand. Otherwise, it is not accepted and the student will not receive any credit for that exam. MSU's excused absences are listed in (3) above.
5. **Group Projects:** Groups are assigned by the instructor. Each group will be assigned a Total Quality Control task as a group project. Each group will complete the project and report the results

in two formats: one a power point presentation summarizing the project, and one MS Word document, detailing the project. Both of these are due by the deadline to be announced by the instructor. There is no substitute for these activities.

6. **Research Paper:** IET 619 students will be required to submit a detailed research paper prior to the Final Exam. The research paper is an individual activity and will address the impact of Total Quality Control on society (locally, nationally, and or globally). The paper is expected to be in the form of technical, publishable manuscript with relevant citations

Evaluation

Activity	Point	Percentage
Syllabus Quiz	20	2%
Personal Information Blog Page	30	3%
Class Participation (Discussion Board)	100	10%
Individual Assignments (5)	250	25%
Group Projects	100	10%
Exams (2)	200	20%
Final Exam	250	25%
Electronic Portfolios	50	5%
Research Paper	200	20%

Total **1200** **100%**

Note: 90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; Below 60% = E

ACADEMIC HONESTY

Cheating, fabrication, plagiarism or helping others to commit these acts will not be tolerated.

Academic dishonesty will result in severe disciplinary action including, but not limited to, failure of the student assessment item or course, and/or dismissal from MSU. If you are not sure what constitutes academic dishonesty, read The Eagle: Student Handbook or ask your instructor. The policy is located at:

<http://www.morehead-st.edu/units/studentlife/handbook/academicdishonesty.html>

For example: Copying information from the Internet is plagiarism if appropriate credit is not given.

POLICY for ACCOMMODATING STUDENTS with DISABILITIES

Professional staff from MSU Academic Services Center (ASC) coordinates efforts to address accessibility needs and class accommodations with instructors of students who have learning or physical disabilities. Faculty will cooperate with the ASC staff to accommodate the needs of students taking departmental courses.

CAMPUS SAFETY STATEMENT

Emergency response information will be discussed in class. Students should familiarize themselves with the nearest exit routes in the event evacuation becomes necessary. You should notify your instructor at the beginning of the semester if you have special needs or will require assistance during an emergency evacuation. Students should familiarize themselves with emergency response protocols at www.moreheadstate.edu/emergency.

CONTINGENCY PLAN

In case of emergency that may impact classes, students are expected to contact Blackboard for an announcement by the instructor.

COURSE OUTLINE

TOTAL QUALITY CONTROL (IET 619)

FALL 2015

WEEK 1 & 2

Date	Topic/Activity	Chapter
08/17	Syllabus and Course Introduction Intro to TQM, Quality Overview Syllabus Quiz and Personal Info Page assigned	Ch. 1
08/24	Planning, Benchmark, Leadership Syllabus Quiz due IA1 assigned and DB 1	Ch. 2

WEEK 3 & 4

Date	Topic/Activity	Chapter
08/31	Quality Management Systems Total Quality Management Tools Personal Info Blog Page due, IA1 due IA2 and DB 2 assigned	Ch. 7
09/07	Problem Solving Techniques IA2 due DB 3 (Labor Day: Mon. September 7)	Ch. 7

WEEK 5 & 6

09/14	EXAM 1 (Mon. Sept. 14)	
09/21	Statistical Process Control (SPC) DB 4	Ch. 8

WEEK 7 & 8

09/28	SPC by Variables IA3 assigned DB 5 (Fall Break: Thur. 10/1 and Fri. 10/02)	Ch. 8
10/05	SPC - Process Capability IA3 due IA4 assigned and DB 6	Ch. 9

WEEK 9 & 10

10/12	SPC by Attributes IA 4 due DB 7	Ch. 10
10/19	EXAM 2 (Mon. October 19) Group Project Assignment	

WEEK 11 & 12

10/26	SPC software DB 8 Research Paper assigned	
11/02	Special Topics Quality Engineering: Six Sigma Quality Engineering: Taguchi, QFD Experimental Design: DOE, ANOVA	Ch. 14 Ch. 5 Ch. 13

WEEK 13 & 14

11/09	Group Project Work (ATMAE Conference: Nov 11 – 14) IA5 assigned	
11/16	Group Project Update IA5 and Research Paper due	

WEEK 15 & 16

11/23	Final Group Project Presentations Electronic Portfolio assignment (THANKSGIVING BREAK: Nov 25 – 27)	
11/30	Course Overview (Review for Final Exam) Electronic Portfolios due	

IA = Individual Assignment DB = Discussion Board GP = Group Project

Final Exam: Monday, December 7 2015 (6:00PM – 8:40PM)

NOTE: This syllabus is subject to change at the discretion of the instructor to accommodate student and/or instructional needs.

Reference

- Akao, Y. (1990). *Quality function deployment*. Cambridge, MA: Productivity Press.
- Capezio, P., & Morehouse, D. (1993). *Taking the mystery out of TQM: A practical guide to total quality management*. Hawthorne, NJ: Career Press.
- Crosby, P. B. (1979). *Quality is free*. New York, NY: McGraw-Hill.
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- Deming, W. E. (1986). *Out of crisis*. Cambridge, MA: Massachusetts Institute of Technology, Center for Advanced Engineering Study.
- Feigenbaum, A.V. (1983). *Total quality control*. New York, NY: McGraw-Hill.
- Gitlow, H.S., and Gitlow, S. (1987). *The Deming guide to quality and competitive position*. Angled Cliffs, NJ: Prentice-Hall, Inc.
- Goldratt, E. M., and Cox, J. (1986). *The goal: a process of ongoing improvement*. Croton-on-Hudson, NY: North River Press.
- Imai, M. (1986). *Kaizen: the key to Japan's competitive success*. New York, NY: Random House.
- Ishikawa, K. (1990). *Introduction to quality control*. Tokyo, Japan: 3A Corporation.
- Juran, J. M. (1992). *Juran on quality by design*. New York, NY: The Free Press.
- Juran, J. M. (1989). *Juran on leadership for quality: an executive handbook*. New York, NY: The Free Press.
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- Scherkenback, W. W. (1991). *Deming's road to continual improvement*. Knoxville, TN: SPC Press.
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- Schonberger, R. J. (1982). *Japanese manufacturing techniques*. New York, NY: The Free Press.
- Senge, P. (1991). *The fifth discipline: the arts and practice of the learning organization*. New York, NY: Doubleday Currency.
- Townsend, P., Gebbardi, J. E. (1990). *Commit to quality*. New York, NY: John Wiley & Sons.
- Walton, M. (1990). *Deming management at work*. New York, NY: The Putnam Publishing Group.
- Winchell, W. O. (1992). *TQM: Getting started and achieving results with total quality management*. Dearborn, MI: Society of Manufacturing Engineers.