

IME 5080
ADVANCED QUALITY MANAGEMENT
Fall, 2006

2004-2006 Catalog Data: Analysis and application of new concepts in the field of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control.

Prerequisite course: IME318 or IME328 or IME501 or equivalent.

Text: James Evans and William Lindsay, *The Management and Control of Quality*, Thomson South-Western Publishing, 2005.

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Course Learning Objectives – By the end of the semester the student should:

1. Be able to apply tools necessary to identify and analyze customer needs (a,b,c,f)
 2. Be able to design inspection systems (a,b,c,d,f)
 3. Understand the concept of service quality and ways to measure it (a,b,c,f)
 4. Be able to design tools to aid in quality improvement and cost analysis (a,b,c,f)
 5. Identify the input of quality in the supply chain (a,b,c,f)
- Letters in Parentheses refer to ABET TAC Criterion 2

Academic honesty policy:

You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate (pp. 274-276) and Graduate (pp. 26-28) Catalogues that pertain to Academic Integrity. These policies include definitions of cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

Prerequisite skills:

1. Basic electronic communication skills; word processing, electronic spreadsheet, internet access, email
2. Working knowledge of descriptive statistics (mean, variance, graphical display methods, probability) and inferential statistics; estimation, hypothesis testing, regression (MTH216, 260, or 366)
3. Understanding of sampling techniques, both SPC and lot-by-lot. (IME318 or IME328 or IME501 or permission of instructor.)
4. Grasp of the fundamental of quality including tools (Pareto analysis, cause and effect diagrams, data collection, etc.) and the basics of quality economics. (IME318 or IME328 or IME501 or permission of instructor.)

Professional Component:

This course addresses ABET Criteria for professional component as follows:

- a. College-level math, basic science: 1 credit or 33%
- b. Engineering topics (engineering science and design): 2 credits or 67%
- c. General education: 0%

Relationship to IME Program Education Objectives/Student Learning Outcomes:

This course provides significant support for the following IME program outcomes:

1. a, b, c, d, e 2. c, d, e, f 3. a, b, c 4. a, b

Grading policy:

My job in this class is to make you **think**, therefore, your ability to regurgitate book or resource information on tests and assignments will not be valued as highly as your ability to think about, analyze, and discuss information. This is graduate school, I assume you know how to read, write, add, subtract, multiply, divide, speak, and do other things a graduate student should. In other words, spelling, grammar, and math errors do count. Poorly written reports, tests, or analyses will result in a reduction in grade. All outside assignments will be collected at the beginning of the period it is due. Late work is not accepted without written verification of an emergency beyond student's ability to plan for or control that event. If the assignment is late, even if it is turned in later than the beginning of the period when it's due, a 30% penalty may be assessed. Tests will be open book and open note, and will consist of problems, short answer, or essay and discussion questions. They may be based on a case provided prior to the test. This class will be conducted on an interactive basis, that is, during our discussion of concepts and techniques, your participation is expected. Because participation is a part of the grade you will receive, it may be important to recognize the approach I will take in its evaluation. Scholarship appropriate to graduate level course work is expected. Discussions should focus on the quality of one's response rather than its quantity.

Final grades will be based on your performance in the following activities:		For the purpose of assigning grades, the following scale will be used.	
Test #1	30%	A	90-100
Test #2	30%	BA	85-90
Outside assignments	20%	B	80-85
Class Participation	5%	CB	75-80
www.freequality.org/wmich	15%	C	70-75
		DC	65-70
		D	60-65
		E	less than 60

Date	Topic	Chapter
September 8	Introduction	1
September 15	Quality defined	2,3
September 22	No Class	
September 29	Customer Satisfaction	4
October 5	Leadership & Planning	5
	Process Management	6
October 12	Performance and economics	8,9
October 19	Turn in Test 1 Service Quality	*
October 26	No class	10,11
November 2	Six Sigma	10,11
November 9	Tools	12,13
November 16	No class	
November 23	Thanksgiving	
November 30	SPC & Sampling	14,*
December 7	Supply Base Quality	*
December 14	Turn in Test 2	5:30 PM

- - Outside material