PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

QUALITY IMPROVEMENT
MGT 2160

Class Hours: 3.0  Credit Hours: 3.0
Laboratory Hours: 0.0  Revised: Spring 05

Note: This course is not designed for transfer credit.

Catalog Course Description:

This course is an introduction to quality management as a system through the application of statistical process control, W. Edwards Deming’s management philosophy, and various quality management techniques.

Entry Level Standards:

The beginning student should be proficient in algebraic reasoning and calculation. The student should be proficient with a calculator, especially the statistical section. The student should be able to read and write at the college level. Most importantly, the student should be able to reason logically.

Prerequisites:

MGT 2000

Corequisites:

MATH 1530 or department approval

Textbook(s) and Other Course Materials:

Textbook:

Reference Book:

Calculator:
A calculator with a statistical section is required for the course.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1-3</td>
<td>Course Introduction: Total Quality, Team Management, Deming’s 14 Points of Management, History of Quality, Present Quality &amp; SPC Applications, Costs of Quality, Malcolm Baldridge National Quality Award, Deming Prize, Benchmarking, etc.</td>
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<tr>
<td>4-8</td>
<td>Documenting and Diagnosing a Process: Flowcharts, Operational Definitions, Cause and Effect Diagrams, Check Sheets, Pareto Analysis Basic Statistics: Frequency Distributions, Histograms, Run Charts, Measures of Central Tendency, Measures of Variability, Measure of Shape, Project Quality Improvement</td>
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8-14 Stabilizing and improving a Process Using Control Charts: The Plan, Do, Study, Act Cycle, Variation, Rational Subgrouping, Out of Control Signals & Patterns; Attribute Control Charts: P Charts, np Charts, C Charts, U Charts Variables Control Charts: X-Bar and R Charts, X-Bar and S Charts; Process Capability

15 Exam Period

II. Course Objectives*:

A. Demonstrate an adequate knowledge of W. Edwards Deming’s quality concept. I, II, III, VIII

B. Demonstrate an adequate knowledge of quality control history and current events. I, II

C. Demonstrate an adequate quality control vocabulary. I, II, III

D. Demonstrate an adequate knowledge of quality control evaluative methods. I, II, III

*Roman numerals after course objectives reference goals of the Management program.

III. Instructional Processes*:

Students will:

1. Practice elements of the work ethic such as professionalism, preparedness, punctuality, honesty, cooperation, dependability, contribution, effectiveness, good manners, etc. Personal Development Outcome, Cultural Diversity & Social Development Outcome; Transitional Strategy

2. Calculate homework problems, case studies, etc. using computer software and/or a calculator. Problem Solving & Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Active Learning Strategy

3. Research and write a report on an organization’s Quality Improvement program. Communication Outcome, Problem Solving & Decision Making Outcome, Information Literacy Outcome, Transitional Strategy, Active Learning Strategy

*Strategies and outcomes listed after instructional processes reference Pellissippi State’s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

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

1. Explain how statistical process control fits in to the quality management system. A, B

2. Interpret the relationship between quality/productivity and world market competitiveness. B

3. Evaluate the cost of quality. A, B, C

4. Describe and analyze W. Edwards Deming’s 14 points of management and his quality management philosophy. A, C

5. Summarize the history of quality control. A, B, C

6. Summarize the history of team management. A, B, C
7. Evaluate team management. A, B, C

8. Describe current events in the quality management field. A, B, C

9. Compute and/or construct, analyze, and apply the following evaluative methods: C, D
   
a. Flowcharts  
b. Operational Definitions  
c. Cause and Effect Diagrams  
d. Check Sheets  
e. Pareto Diagrams  
f. Histograms  
g. Run Charts  
h. Process mean, range, and standard deviation  
i. P, nP, C, and V attribute control charts  
j. X-BAR and R and X-BAR and S variables control charts  
k. Individuals control charts

10. Explain the difference between common and special causes of variation. C, D

11. Describe the Plan, Do, Study, Act continuous improvement cycle. A, C, D

12. Evaluate rational subgrouping schemes. C, D

13. Identify and evaluate process state of control. C, D

14. Contrast specifications and control limits. C, D

15. Evaluate process capability. C, D

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

   Students are evaluated primarily on the basis of tests. A minimum of 3 major tests is recommended.

B. Laboratory Expectations:

   N/A

C. Field Work:

   N/A

D. Other Evaluation Methods:

   Class participation, group work and home-work will also comprise the final grade for the course. Each instructor must provide full details during the first week of class via a syllabus supplement.

E. Grading Scale:

   92 - 100  A

   89 - 91  B+
VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. [NOTE: No differentiation is noted for excused/unexcused absences. These will be treated as an absence.] *(Pellissippi State, 2004-2006 Catalog, page 83)*

B. Academic Dishonesty:

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination or to assign an F in the course. *(Pellissippi State, 2004-2006 Catalog, pages 62-63)*

C. Accommodations for disabilities:

If you need accommodation because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Privately after class or in the instructor's office.

To request accommodations students must register with Services for Students with Disabilities: Goins 127 or 131, Phone: (865) 539-7153 or (865) 694-6751 Voice/TDD.

D. Other Policies:

*Computer Usage Guidelines:*

College-owned or –operated computing resources are provided for use by students of Pellissippi State. All students are responsible for the usage of Pellissippi State’s computing resources in an effective, efficient, ethical and lawful manner. *(Pellissippi State, 2004-2006 Catalog, pages 67-70)*