PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

STATISTICAL PROCESS CONTROL
MET 2820

Class Hours: 3.0 **Credit Hours: 4.0**

Laboratory Hours: 3.0 **Revised: Fall 2010**

Catalog Course Description:

A study of the fundamental concepts and methodology of statistical process control (SPC), with particular emphasis placed on laboratory projects to enhance hands-on operational experience. Topics include philosophy of SPC and other quality systems, basic statistical concepts, variable and attribute charting, and computer-assisted methods.

Entry Level Standards:

Students entering this course should have a fundamental knowledge of basic measuring and testing techniques.

Prerequisites:

MATH 1530 and MET 2810

Textbook(s) and Other Course Materials:

Quality Control: Besterfield, Prentice-Hall, 7TH Edition, 2003.

The Quality Technician's Handbook: Griffith, Prentice-Hall, Latest Edition, 2003.

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction & Philosophy
2-3	Basic Statistical Concepts
4-6	Control Charts for Variables
7-8	Process Capability
9-10	Control Charts for Attributes
11-14	Culminating Experience
15	Final Exam, Final Project, or Presentation

II. Course Goals*:

The course will:

A. Guide students to demonstrate their understanding of the basic philosophy and principles of SPC. (I, III, V)

B. Guide students to demonstrate their understanding of basic statistical concepts. (I, III, V)

C. Guide students to set-up, initiate, and analyze a gage capability study by computer-assisted methods. (I-V)

D. Guide students to set-up and initiate a variable control process by computer-assisted methods. (I-V)

E. Expand student understanding of set-up and initiate an attribute control process by computer-assisted methods. (I-V)

F. Expand student understanding of collecting data and analyzing the results. (I-V)

G. Expand student understanding of communicating technical information. (I-V)

* Roman numerals after course goals reference goals of the Engineering Technology Program

III. Expected Student Learning Outcomes*:

The student will be able to:

1. define, explain, and associate the terminology used in SPC. A
2. apply and associate the principles of SPC. A
3. calculate mean, median, mode, range, and standard deviation. B
4. create a frequency distribution chart and histogram. B
5. analyze a histogram for skewness, kurtosis, and normal distribution. B
6. create a GR&R program by computer-assisted methods. D
7. collect data and analyze results of gage capability study. D & G
8. create computer-assisted program for a variable and attribute process. E & F
9. collect data and analyze results for a variable and attribute process. B, E, F, & G
10. document technical information from gage capability, variable, and attribute processes in a neat and orderly format. H
11. locate and extract needed information from operational and programming manuals. H
12. complete assignments based on oral and written instructions. H

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

Evaluation of both classroom and laboratory work is required in this course. Total evaluation will be based on the following point distribution.

A. Testing Procedures:

Quizzes (25 Points): Approximately 4-6 quizzes will be administered during the course. They will include discussion questions, short answer questions, true/false questions, and problem solving.

B. Laboratory Expectations:

Process Capability Project	(10 Points)
e Data Project	(15 Points)
:e Data Project	(15 Points)
Case Study	(25 Points)

The instructor will provide guidelines and requirements for each project.

C. Field Work:

N/A

D. Other Evaluation Methods:

Participation (10 Points):
Based on instructor observation during the course, each student will be evaluated on participation activities. Evaluation parameters to include active participation in class discussions, being prepared, efficient use of lab time, striving to achieve more than minimum requirements, and regular attendance.

E. Grading Scale:

Final grade for this course will be based on the following alphabetic/numerical scale.

A	93-100
B+	88-92
B	83-87
C+	79-82
C	74-78
D	65-73
F	Below 65

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of the Learning Division, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of the Learning Division.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following

practices:
• Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

C. Accommodations for disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at www.pstcc.edu/departments/swd/

D. Other Policies:

Safety and Equipment Abuse: Repeated safety violations will result in a reduction of final grade, at the instructor's discretion. Flagrant violations which result in equipment damage or personal injury will result in automatic failure of the course.