

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

**STATISTICAL PROCESS CONTROL
MET 2820**

Class Hours: 3.0

Credit Hours: 4.0

Laboratory Hours: 3.0

Date Revised: Fall 00

Catalog Course Description:

A study of the fundamental concepts and methodology of statistical process control.

Entry Level Standards:

Students entering this course should have basic skills in measuring techniques, word processing, CAD, and math.

Prerequisites:

None

Textbook(s) and Other Reference Materials Basic to the Course:

Textbook:

DataMyte Handbook: 4th Edition, October 1989.

References:

Quality Control: Besterfield, Prentice-Hall, 4th Edition, 1994.

862 Data Collector Reference Manual: DataMyte, 1988.

SPC Simplified - Practical Steps To Quality: Amsden, Butler, & Amsden, Quality Resources, 1989.

I. Week/Unit/Topic Basis:

Week	Topic
1-2	Introduction & Philosophy
3-4	Basic Statistical Concepts
5-9	Control Charts For Variables
10	Process Capability
11-13	Control Charts For Attributes
14-15	Gage Repeatability & Reproducibility
16	Final Exam Period

II. Course Objectives*:

- A. Demonstrate their understanding of the basic philosophy and principles of SPC. I, II

- B. Set-up and initiate a variable control process by computer-assisted methods. I, II, III, IV, V
- C. Set-up and initiate an attribute control process by computer-assisted methods. I, II, III, IV, V
- D. Set-up and initiate a gage repeatability & reproducibility (Gage R&R) process. I, II, III, IV, V
- E. Collect data and analyze results. II, III, V
- F. Communicate technical information. IV

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

III. Instructional Processes*:

Students will:

1. Actively listen to class lectures and participate in class activities that develop and reinforce an understanding of the theories, concepts, principles, and applications of CNC Wire-Cut EDM machining. *Communication Outcome, Problem Solving & Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Information Literacy Outcome, Active Learning Strategies*
2. Work individually and in teams to complete lab projects and assignments related to the theories, concepts, principles, and applications covered in the lecture or demonstration portion of the course. *Problem Solving & Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Information Literacy Outcome, Active Learning Strategies*
3. Collect, analyze, and tabulate data in an orderly format to prepare a college level technical report using software packages such as AutoCAD, WordPerfect/Word, Uni-Touch Plus, and EZ-EDM. *Communication Outcome, Problem Solving & Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Information Literacy Outcome, Active Learning Strategies*
4. Observe class demonstrations on SPC and electronic measuring equipment, practice, and then demonstrate to instructor basic manipulative skills required to set-up, operate, and program equipment. *Problem Solving & Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome*
5. Observe class demonstrations on SPC software, practice, and then integrate manipulative and cognitive skills with assimilated knowledge to successfully complete lab projects. *Problem Solving & Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome*
6. Participate in technical meetings, plant tours, and seminars sponsored by local technical societies to increase student knowledge of machining and manufacturing processes and enhance awareness of required job skills and opportunities in industry. *Personal Development Outcome, Transitional Strategies*

*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. Define, explain, and associate the terminology used in S.C. A
2. Apply and associate the principles of S.C. A,B,C,D,E
3. Functionally operate and set-up data collection units. B
4. Create computer-assisted program for variable, attribute, and Gage R&R processes. B,C,D
5. Functionally operate and collect data using electronic gaging equipment. B,E
6. Process and organize data. E
7. Determine acceptability of data and "accept or reject" results. A,E
8. Document technical information in a neat and orderly format. F
9. Locate and extract needed information from operational and programming manuals. F
10. Complete assignments based on oral instructions. F

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

V. Evaluation:

A. Testing Procedures:

Evaluation of both classroom and laboratory work is required in this course.

Quizzes--20 Points

Approximately 4-5 quizzes will be administered during the course. They will include discussion questions, short answer questions, true/false questions, and problem solving.

B. Laboratory Expectations:

Variable Data Project--30 Points

Attribute Data Project--20 Points

Gage R&R Project--10 Points

Research & Presentation Project--10 Points

Guidelines and requirements for each project will be provided by the instructor.

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:

A 92-100

B+ 88-91

B	83-87
C+	79-82
C	74-78
D	65-73
F	Below 65

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. Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.

B. Academic Dishonesty:

Cheating on a quiz or assigned project will not be tolerated. First offense will result in immediate dismissal and automatic failure of the course. Assistance from other students is encouraged during the learning stages of the course, but each student is responsible for completing their own course assignments.

C. Other Policies:

Make-Up Quizzes: As a general rule, no make-up quizzes will be administered during the course.

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.

Counseling: Counseling is available during posted office hours or by appointment.