

PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

**FUNDAMENTALS OF TESTING
MET 2800**

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 0.0

Revised: Fall 2010

Catalog Course Description:

An introductory course in the development and use of various testing procedures. Topics include measuring devices, including use, care, and calibration, measurement uncertainty and error, developing a test plan and part layout, data collection methods and analysis, and final reporting. In addition, the topics of product reliability and ISO certification are presented.

Entry Level Standards:

Students entering this course must be capable of organizing and communicating an extensive amount of information in a written format.

Prerequisites:

ENGL 1010 and MET 1012

Textbook(s) and Other Course Materials:

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

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction
2-6	Measuring Devices: Direct & Indirect Measuring instrument use, care, & calibration
7-8	Measurement Uncertainty Measurement Error
9-10	Part Layout and Test Plans
11-12	Data collection methods and analysis Reporting of findings
13-14	Product Reliability ISO certification
15	Presentation/Final Exam

II. Course Goals*:

The course will:

- A. Enhance effective understanding of basic testing principles. (I)
- B. Enhance effective understanding of the proper use, care, and calibration of direct measuring devices. (II)
- C. Enhance effective understanding of the proper use, care, and calibration of indirect measuring devices. (II)
- D. Expand student understanding of designing a part layout and test procedure. (I-V)
- E. Guide students to conduct tests; collect and analyze data. (I-V)
- F. Guide students to prepare a test report. (II-V)
- G. Guide students to explain the concepts and principles of product reliability. (I)
- H. Guide students to identify and explain the main concepts regarding ISO certification. (I-V)
- I. Guide students to identify and explain measurement errors. (I-V)
- J. Expand student understanding of the principles of measurement uncertainty. (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 testing. A
- 2. select and identify objectives for a variety of tests. A
- 3. identify sequence of events in development cycle. A
- 4. explain and demonstrate the proper care, use, and calibration of direct measuring devices. B
- 5. explain and demonstrate the proper care, use, and calibration of indirect measuring devices. C
- 6. identify specifications for a part, end item, or system. D
- 7. select appropriate sample sizes. D
- 8. develop a logical and comprehensive part layout and test plan. D
- 9. analyze data and accept, reject, or retest based on preliminary findings. D, E
- 10. process and organize data. E, F
- 11. determine acceptability or rejectability of data and make recommendations. E
- 12. document technical information in a neat and orderly format. F
- 13. explain the concepts and principles of product reliability. G
- 14. identify and explain the main concepts regarding ISO certification. H

15. identify and explain measurement errors and measurement uncertainty. I, J

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

IV. Evaluation:

Evaluation of both classroom work and student projects is required and points will be awarded as follows:

A. Testing Procedures:

Comprehensive Final Exam (10 Points)

B. Laboratory Expectations:

Evaluation of both classroom work and student projects is required and points will be awarded as follows:

- | | | |
|----|------------------------------|-------------|
| A. | Project 1: Gage R & R Study | (15 Points) |
| B. | Project 2: Part Layout | (20 Points) |
| C. | Project 3: Measurement Error | (25 Points) |
| D. | Project 4: Test Reporting | (25 Points) |

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

C. Field Work:

N/A

D. Other Evaluation Methods:

Participation (5 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, 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.