

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE

INSTALLATION PRACTICES

SEAT 1600

Class Hours: 1.0

Laboratory Hours: 3.0

Credit Hours: 2.0

Revised: Fall 2005

Catalog Course Description:

An introductory course in installation practices. The student will be introduced to the national electrical code (NEC) and other national codes and standards, with particular emphasis on the NEC. The student will be introduced conductor properties and applications for power, instrumentation, security, network, and communication cabling. This course emphasizes low voltage wiring in residential and commercial buildings and the ULC requirements of protective wiring, access control systems and video surveillance systems. Functionality, installation practices and wiring methods of alarm systems are emphasized.

Entry Level Standards:

The student must have college level standing in mathematics.

Prerequisites:

EET 1012 or approval of the instructor

Textbook(s) and Other Course Materials:

Electrical Raceways and Other Wiring Methods, Richard E. Loyd, Delmar Publishing, 5th Ed., 2004.

National Electrical Code 2005, National Fire Protection Association, 2005.

I. Week/Unit/Topic Basis:

The following is intended as a guide to the instructor. The material covered in the course may be changed by the instructor depending upon the progress, etc., of the class.

Week	Topic
1	Introduction to the National Electrical Code
2	Conductors
3	Conductors
4	Grounding
5	Exam #1
6	Circuit Considerations
7	Raceway Installation
8	Termination Techniques
9	Exam #2
10	Introduction to Low Voltage Systems
11	Low Voltage Systems: Instrumentation, Security, and Networking Systems
12	Low Voltage Systems: Instrumentation, Security, and Networking Systems
13	Other Installation Practices
14	Exam #3
15	Final exam.

II. Course Objectives:

A. Understand basic national electrical code concepts as applied to electrical, instrumentation, and security related systems. A, B, D, E

B. Understand proper installation techniques. A, B, D, E

- C. Understand the different types of raceways used in industry. A, B, D, E
- D. Recognize some of the common tools used in installing electrical, instrumentation, and security systems. A, B, D, E
- E. Understand safe work practices and safety requirements in systems. A, B, D, E
- F. Understand the basic factors that impact conductor size. A, B, D, E
- G. Understand how to size and select the proper cable, raceway, and termination method for a job. A, B, D, E
- H. Understand basic principles of low voltage instrumentation, security, and networking systems. A, B, D, E
- I. Demonstrate, as an individual and as a team member, library/information skills, time management skills, problem-solving skills, material management skills, and communication skills. D, F, G, I, K

* Letters after course objectives reference EET Program Outcomes (as required by ABET).

III. Instructional Processes:

Students will:

1. Participate in classroom discussions which challenge their abilities to think creatively and visualize complex spatial and mathematical relationships to solve problems. *Mathematics Outcome*
2. Work in teams to conduct laboratory experiments and also to solve special problem assignments. These activities are designed to foster interpersonal skills in teamwork and develop and enhance leadership skills, students' abilities to express ideas, and students' abilities to reach consensus solutions for the team through negotiation. *Communication Outcome; Mathematics Outcome; Active Learning Strategy*
3. Use electronic test equipment to test electrical circuits constructed from schematics in the laboratory and acquire data. Use computers with applications software to simulate, analyze, and predict the behavior of electrical circuits. Compare expected responses to experimental responses of electrical circuits. Use the Internet for special assignments such as locating data sheets on electronic components. Use computers with word processing software to prepare reports. *Communication Outcome; Mathematics Outcome; Technological Literacy Outcome*
4. Prepare reports on laboratory experiments which include methodology, mathematical analyses of electrical circuit models, a comprehensive comparison of calculated results with experimental results, and conclusions. *Communication Outcome; Mathematics Outcome; Technological Literacy Outcome*
5. Discuss the importance of personal qualities such as personal responsibility, time management principles, self-esteem, sociability, self-management, integrity and honesty in school and in the workplace, and dynamics of change in the workplace. *Social and Behavioral Science Outcome; Transition Strategy*

IV. Expectations for Student Performance*:

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

1. Identify some code requirements for electrical systems. A
2. Identify some code requirements of low voltage systems. A
3. Size and select electrical conductors. F, G
4. Size and select instrumentation cable. F, G
5. Specify communication cable for specific applications. F, G
6. Identify characterize different types of raceways. G
7. Understand basic installation limits for different raceways. G
8. Recognize common wiring practices consistent with the NEC. A, G
9. Understand basic codes and regulations applied to electrical, instrumentation, and security systems. A
10. Recognize basic NBFAA installation standards and practices for security systems. B
11. Learn basic principles of cable terminations.

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

V. Evaluation:

A. Testing Procedures:

The evaluation in the classroom grade will be determined by a combination of tests, homework, quizzes, project, and a final exam. The percentage that each of these factors count and the frequency of quizzes, tests and homework is left to the discretion of the instructor, but the following is offered as a guide:

Tests:	50%
Homework and Quizzes	20%
Laboratory	10%
Final Exam:	20%

B. Laboratory Expectations:

N/A

C. Field Work:

N/A

D. Other Evaluation Methods:

N/A

E. Grading Scale:

93 - 100 A

88 - 92 B+

83 - 87 B

78 - 82 C+

70 - 77 C

60 - 69 D

Below 60 F

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 (Pellissippi State Catalog). Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent. Attendance is required to all lab sessions unless excused by the instructor. Students missing more than four unexcused sessions will receive an "F" and no credit will be received. Students tardy past half an hour will be considered absent.

B. Student Conduct:

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. In addition to other possible disciplinary sanctions that may be imposed as a result of academic misconduct, the instructor has the authority to assign either (1) an F or zero for the assignment or (2) an F for the course.

C. Accommodations for Disabilities:

If you need accommodations 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 Office located in J.L. Goins Administration Building, Room 127 or 131 or by phone: (865) 539-7153 or (865) 694-6751 Voice/TTD.