

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

PC REPAIR AND NETWORKING
EET 2710

Class Hours: 3.0

Credit Hours: 4.0

Laboratory Hours: 3.0

Date Revised: Summer
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NOTE: This course is not intended for transfer credit

Catalog Course Description:

This course includes installation of computer systems including networks. Troubleshooting techniques using various utilities and diagnostics are covered. Aspects such as professional ethics and customer relations are treated.

Entry Level Standards:

The student should have a knowledge of basic digital fundamentals and solid state electronics.

Prerequisites:

EET 1020, EET 1210, EET 2310

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

Textbook:

The Complete Computer Repair Textbook. 2nd ed. El Grenada, CA: Scott /Jones Publishers. ISBN: 1-57676-033-2

Reference:

Gerald Morris. *Windows NT Server Lab Manual*. El Grenada, CA: Scott/Jones Publishers. ISBN: 1-57676-047-2

I. Week/Unit/Topic Basis:

Week	Topic
1	Lecture: Introduction to PC Repair Lab: Identification of System Components
2	Lecture: Motherboard; System Configuration Lab: Assembly of a System
3	Lecture: Disassembly/Reassembly Lab: Assembly of a System
4	Lecture: Basic Electronics and Power; Logical Trouble Shooting Lab: Preventive Maintenance

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| 5 | Lecture: Memory
Lab: Use of Diagnostic Software |
| 6 | Lecture: Floppy Drives
Lab: Loading Operation Systems, Windows and DOS |
| 6-7 | Lecture: Hard Drives
Lab: Loading Operation Systems, Windows and DOS |
| 8 | Lecture: CD ROM and Sound Cards
Lab: Networking |
| 9 | Lecture: Serial Devices, Mice and Keyboards
Lab: Networking |
| 10 | Lecture: Video
Lab: Networking |
| 11 | Lecture: Printers
Lab: Networking |
| 12 | Lecture: Introduction to DOS; Introduction to Windows 95
Lab: Student Projects and Demonstrations |
| 13-14 | Lecture: Introduction to Networking
Lab: Student Projects and Demonstrations |
| 15 | Lecture: Review
Lab: Student Projects and Demonstrations |
| 16 | Final Exam |

II. Course Objectives*:

- A. Discuss the fundamentals of troubleshooting and basic preventive and corrective maintenance practices. I, III, VI, VII
- B. Describe the basic characteristics of the IBM Personal Computer (PC), PC clones, and the Intel microprocessor family. I, II, III, VI, VII
- C. Use MS DOS to create and manipulate files. II, III, IV
- D. Use all features of Windows 95 to maintain and operate a system. III, IV, V
- E. Describe the operation and maintenance of basic hardware components and peripherals of the PC including the motherboard, hard disks, floppy disk drives, CD ROM drives, memory, keyboards, power supplies, video displays, sound cards and speakers and printers. III, IV, V
- F. Explain the use of software diagnostics and the built-in self tests. II, III, IV, V
- G. Connect two or more PC's in a network. II, IV, V

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

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. *Problem Solving and Decision Making 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. *Active Learning Strategy, Problem Solving and Decision Making Outcome, Personal Development Outcome*
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. *Technological Literacy Outcome, Information Literacy Outcome, Numerical 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, Numerical 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. *Personal Development Outcome, Cultural Diversity and social Adaptation Outcome, Transitional 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 the importance PC Diagnostics and error detection. A
2. Know what to do following a system crash. A
3. Develop a preventive maintenance schedule. A
4. Develop problem isolation techniques for corrective maintenance. A
5. Interpret error messages created by the POST test. A
6. Use the diagnostics diskette for routine diagnostics and use the diagnostic diskette for troubleshooting. F
7. Fully understand the function and use of device drivers. F
8. Fully understand the function and use of the registry. D

9. Calculate power requirements for a computer and identify power supply problems and understand power supply replacement procedures. B
10. Troubleshoot system board problems. B
11. Understand chip handling precautions. E
12. Explain computer memory and memory expansion principles. E
13. Utilize memory diagnostics to locate memory problems. E
14. Utilize various diagnostics to isolate problems related to the diskette and hard drive. D,E
15. Understand data recovery techniques. F
16. Install or swap new floppy drives or hard drives. D, E
17. Interpret keyboard error codes and understand keyboard diagnostics and repair or replace the keyboard. D, E
18. Explain different display adapter hardware. D, E
19. Utilize display adapter diagnostics and understand the error codes. E
20. Utilize modem diagnostics. E
21. Understand communication line problem techniques. E
22. Understand system configuration requirements. D
23. Utilize printer diagnostics and utilize printer troubleshooting techniques to isolate problems. E
24. Understand network configurations and strategies. E, F
25. Install network hardware and software. E, F
26. Understand network administration. E, F, G

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

V. Evaluation:

A. Testing Procedures: 80% of grade

Evaluation will come from both classroom performance and work in the laboratory. The weighing of evaluation will be 80% for classroom work, 20% for the lab. Classroom evaluation will be through examination of homework assigned on a weekly basis, periodic quizzes, a series of chapter or topic tests, and a comprehensive final examination. No make-up tests will be administered. In case of medical problems, notify the instructor prior to the absence. For the classroom, the percentage that each of the above factors count and the frequency of tests and homework is left to the discretion of the instructor, but the following is offered as a guide:

Homework	10%
Quizzes	10%

Chapter or Topic Tests	60%
Final Exam	20%

B. Laboratory Expectations: 20% of grade

Laboratory evaluation will be based on performance, lab reports, and the laboratory examination. The laboratory evaluation will be a combination of performance in the lab, the quality of the lab report, and comprehension of material covered and laboratory techniques. It is important to note that the course cannot be passed unless the laboratory part of the course is passed. The following is offered as a guide for the instructor:

Performance (including lab notebook)	40%
Written reports	40%
Laboratory tests	20%

C. Field Work:

Outside reading of material in the college library will be required in this course.

D. Other Evaluation Methods:

N/A

E. Grading Scale:

A	93 - 100
B+	88 - 92
B	83 - 87
C+	78 - 82
C	70 - 77
D	60 - 69
F	Below 60

VI. Policies:

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.