PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

COMPUTER TROUBLESHOOTING
EET 2710

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

Laboratory Hours: **Date Revised: Fall 1998**
3.0

 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 1210, EET 1020, EET 2310

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

 Upgrading & Repairing PC, 8th Ed., Scott Mueller QUE, ISBN 0789712944
 Teach Yourself Networking in 24 Hours, Matt Hayden, SAMS Publishing, ISBN 0672311453
 Peter Norton's Complete Guide to Windows, 1998 Edition, SAMS Publishing, ISBN 0672312557

I. Week/Unit/Topic Basis:

Week	Topic
1	PC Background; System Features and Components
2	System Teardown and Inspection; Motherboards
3	Bus slots and I/O Cards; Microprocessor Types
4	Memory
5	Power Supplies
6	Input Devices
7	Video Hardware
8	Audio Hardware
9-10	Floppy Disk Drives, Hard Disk Drives, Interfaces, and Installation, CD-ROM Drives

11	Operating Systems
12	Basic Networking, an overview; Constructing a Network
13	Network Operating Systems
14	Network Administration; The Future of Networking
15	Review
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.

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.

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

III. 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.

25.   Install network hardware and software.

26.   Understand network administration.

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

IV. Evaluation:

A. Testing Procedures:

 Evaluation will come from both classroom performance and work in the laboratory. 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. Laboratory evaluation will be based on performance, lab reports, and the laboratory examination. No make-up tests will be administered. In case of medical problems, notify the instructor prior to the absence.

B. Laboratory Expectations:

 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%

Lab Schedule:
<u>Week</u>   <u>Topic</u>

1   Schedule, personal equipment needs
2   Hardware diagnostics and problem analysis
3   System teardown and inspection, preventive maintenance
4   Motherboards, bus slots, processors, memory types, power supplies
5   I/O devices, video display cards, monitors, diagnosis of monitor problems
6   Audio hardware, disk and CD Rom drives and interfaces, hard disk installation
7   System buildup; demonstration and practive 8 Operating Systems; DOS, Windows 95 and 98
9   Demonstration of Norton Utilities for trouble-shooting Windows 95
10   Comprehensive midterm exam
11   Discussion of LANs and demonstration
12   Networking overview, building a network
13   Network operating systems
14   Introduction to network administration
15   Lab examination

C. Field Work:

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

D. Grade Breakdown:

The weighing of evaluation will be 80% for classroom work, 20% for the lab. 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%

E. Grading Scale:

Grades will be alphabetic and are based on the following scale:
A 93 - 100   C 70 - 77
B+ 88 - 92   D 60 - 69
B 83 - 87   F Below 60
C+ 78 - 82

V. 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:

The policy stated in the Student Handbook (found in the PSTCC catalog) will be followed in the event of cheating.