PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

MICROCOMPUTER ARCHITECTURE
EET 2715

Class Hours: 3.0  Credit Hours: 4.0
Laboratory Hours: 3.0  Revised: Spring 05

Catalog Course Description:
To provide an opportunity for students to obtain the knowledge and skills necessary to service microcomputer hardware and supported peripherals. The course includes identifying parts of a PC, discuss the functions and interactions of all PC subsystems, identify and troubleshooting common PC hardware problems, install, replace, and upgrade PC hardware components and install and troubleshoot PC peripherals such as printers and modems.

Entry Level Standards:
The student should have knowledge of basic digital fundamentals and solid state electronics.

Prerequisites:
EET 1310 or Instructor’s Approval

Textbook(s) and Other Course Materials:


I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introducing HardwareHow Hardware &amp; Software Work Together</td>
</tr>
<tr>
<td>2</td>
<td>Understanding the Boot Process &amp; Command Line</td>
</tr>
<tr>
<td>3</td>
<td>Electricity &amp; Power Supplies; The Motherboard</td>
</tr>
<tr>
<td>4</td>
<td>Managing Memory; Floppy Drives</td>
</tr>
<tr>
<td>5</td>
<td>Understanding &amp; Installing Hard Drives; Optimizing &amp; Protecting Hard Drives</td>
</tr>
<tr>
<td>6</td>
<td>Supporting I/O Devices; Multimedia Devices &amp; Mass Storage</td>
</tr>
<tr>
<td>7</td>
<td>Supporting Windows 9x</td>
</tr>
</tbody>
</table>
II. Course Objectives*:

A. Discuss the fundamentals of troubleshooting and basic preventive and corrective maintenance practices. A, B, D

B. Describe the basic characteristics of the IBM Personal Computer (PC), PC clones, and the Intel microprocessor family. A, D

C. Use MS DOS to create and manipulate files. A, C

D. Use all features of Windows 9x to maintain and operate a system. A, C

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. A, B, C, D

F. Explain the use of software diagnostics and the built-in self tests. A, D

G. Connect two or more PC's in a network. A, C, D

H. 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. *Technological Literacy Outcome, Mathematics 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; Transitional Strategy*

*Strategies and outcomes listed after instructional processes reference TBR’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:

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. Laboratory evaluation will be based on performance, lab reports, and the laboratory examination.

Classroom: 80% of grade
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:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Chapter or Topic Tests</td>
<td>40%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
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B. Laboratory Expectations: 20% of grade

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:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Performance (including lab notebook)</td>
<td>5%</td>
</tr>
<tr>
<td>Written reports</td>
<td>10%</td>
</tr>
<tr>
<td>Laboratory tests</td>
<td>5%</td>
</tr>
</tbody>
</table>
C. Field Work:

N/A

D. Other Evaluation Methods:

N/A

E. Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>93 - 100</td>
</tr>
<tr>
<td>B+</td>
<td>88 - 92</td>
</tr>
<tr>
<td>B</td>
<td>83 - 87</td>
</tr>
<tr>
<td>C+</td>
<td>78 - 82</td>
</tr>
<tr>
<td>C</td>
<td>70 - 77</td>
</tr>
<tr>
<td>D</td>
<td>60 - 69</td>
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<tr>
<td>F</td>
<td>Below 60</td>
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No make-up tests will be administered. In case of medical problems, notify the instructor prior to the absence.

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. Labs are considered instructional activities, and attendance is required.

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. 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.