

PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

**INTRODUCTION TO INFORMATION TECHNOLOGY
CSIT 1110**

Class Hours: 3.0

Credit Hours: 4.0

Laboratory Hours: 3.0

Date Revised: December 2010

Catalog Course Description:

A first course in computer science and information technology, providing a comprehensive overview of computer architecture, data organization and communication. The course includes problem solving, logic design, personal computing, operating systems and application software.

Entry Level Standards:

The entry-level student is not expected to have familiarity with computers. The student should be able to use a standard keyboard and maintain 23 words per minute error-free typing rate. The student must have writing, verbal and English language skills at the college entry level.

Prerequisites:

None.

Corequisites:

None.

Textbook(s) and Other Course Materials:

The text will be supplied as a series of free PDF documents.

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction and History
2	Information and Binary
3	Hardware
4	Software
5	Exam 1 – Foundational Topics
6	Networking
7	Databases
8	Computer Languages
9	Security
10	Exam 2 – Basic Topics
11	Robotics

- 12 Artificial Intelligence
- 13 Virtual Reality and Gaming
- 14 Social Implications of Computer Technology
- 15 Final Exam – Advanced Topics

II. Course Goals*:

The course will

- A. Enhance student understanding of the history of computer technology and the role it plays in daily life. (II, III, X)
- B. Provide students with an understanding of the types of information processed by computers and how this information is encoded using numbers. (II, III)
- C. Lead students to an understanding of the binary number system and how information is encoded in binary on computer systems. (II, III)
- D. Expand student knowledge of history and role of switching technologies in computer hardware. (II, III, IV)
- E. Provide students with an understanding of the evolution of programming languages through discussion of the various programming language generations. (I, II, III, IV, V, VI, VII)
- F. Enhance student awareness of the history and functionality of operating system software. (II, III, IV)
- G. Expand student understanding of the Internet through a discussion of the client-server architecture, protocols, URLs and HTTP. (II, III)
- H. Enhance the ability of students to communicate effectively via the web through the use of HTML and discussions concerning web page design. (I, II, III, IV, V, VI, IX, XI, XII)
- I. Provide a basic understanding of network communication hardware. (II, III)
- J. Expand student awareness of the history and importance of database management systems. (II, III, IX)
- K. Provide students with a basic introduction to Structured Query Language (SQL). (II, III, IV, V, VI, IX)
- L. Introduce students to the software development process and discuss the importance of planning and design in the creation of computer software. (II, III, V, VII, X)
- M. Expand student understanding of programming languages through the creation of computer software. (II, III, IV, V, VI)
- N. Provide students with a framework for learning computer languages through a discussion of the archetypal operations of computer languages. (II, III, VI, X, XI)
- O. Enhance student awareness of the various types of malware and other computer security related issues. (II, III, V)
- P. Expand student knowledge of various types of computer hacking in order to be able to defend against such attacks. (II, III, V, XII)
- Q. Enhance student knowledge of the field of robotics including the history of robots, the difficulties of programming robots, and the current state of the art. (II, III, IV, V, VI, VII,

IX, X, XII)

- R. Introduce students to the field of Cybernetics. (II, III, XI)
- S. Enhance student knowledge of the field of Artificial Intelligence through discussions of neural networks and genetic algorithms. (II, III, V, VI, IX, XI, XII)
- T. Expand student awareness of the importance of virtual reality and gaming and of its role in shaping future technology. (II, III, IV, V, VI, VII, X, XII)
- U. Enhance student perception of the ubiquity of computer technology and its role in changing and shaping modern culture. (II, III)
- V. Expand student knowledge and proficiency in using social media. (I, II, X, XII)

*Roman numerals after course objectives reference goals of the *CSIT* program (Career Program Goals and General Education Goals are listed http://www.pstcc.edu/departments/curriculum_and_instruction/syllabi/)

III. Expected Student Learning Outcomes*:

Students will: be able to:

1. Intelligently discuss the history of computer technology. (A)
2. List the sequence of computer hardware switching technologies and discuss their advantages over previous hardware along with any inherent weaknesses. (A, D)
3. List the sequence of computer language generations and analyze their differences. (A, E)
4. Describe the computer language translation processes of assembly, interpretation and compilation. (A, E)
5. Describe how any type of information might be encoded as a series of numbers. (B)
6. Convert decimal numbers to binary and visa versa. (C)
7. Analyze a simple assembly language program and understand how it is converted to machine code and then executed. (A, E)
8. List the major functions of an operating system. (F)
8. Create a simple web page in HTML using only a text editor. (G, H)
9. Upload a web page to a web server. (G, H)
10. Describe how static and dynamic web page URLs are processed. (H, I)
11. Describe how routers work with TCP/IP to move information from source to destination. (G, I)
12. List the primary advantages of a database management system over older flat-file systems. (J)
13. Recognize the basic SQL data manipulation statements and describe the purpose of simple SQL statements. (K)
14. Create a simple program in MIT's Scratch visual programming environment. (L, M, N)
15. Describe common security attacks and the best way to defend against them. (O, P)
16. Discuss how viruses, worms and other malware attack computer systems. (O, P)

17. Discuss the general history of robotics including knowledge of current work in the field. (Q)
18. Program the Lego Mindstorm NXT robots. (M, Q)
19. Describe the “Cybernetic Loop” and its importance in the field of robotics. (R)
20. Describe how a neural network is trained. (S)
21. Describe how a computer program can be “evolved” using a genetic algorithm. (S)
22. Discuss the importance of computer gaming as a test bed for state of the art computer science and as a platform for simulation-based training. (T)
23. Post weekly to a personal blog to describe course progress. (V)

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

IV. Evaluation:

A. Testing Procedures: 33% of grade

3 Non-comprehensive exams @ 100 points each = 300 total points

B. Laboratory Expectations: 18% of grade

8 laboratory assignments @ 15 points each = 180 total points

C. Field Work: 35% of grade

8 assignments for a total of 350 points

D. Other Evaluation Methods: 17% of grade

11 blog entries for a total of 170 points

E. Grading Scale:

A > 900
B - 800 - 899
C - 700 - 799
D - 600 - 699
F < 600

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. [NOTE: No differentiation is noted for excused/unexcused absences. These will be treated as an absence.]

Maintaining continuous attendance in your classes is very important. If you are considering dropping or withdrawing from a course, please check with the Financial Aid Office before doing so. Dropping or withdrawing from a class can adversely affect your financial aid and/or lottery eligibility.

B. Academic Dishonesty:

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination or to assign an F in the course.

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:

Computer Usage Guidelines:

College-owned or -operated computing resources are provided for use by students of Pellissippi State. All students are responsible for the usage of Pellissippi State's computing resources in an effective, efficient, ethical and lawful manner.

Students are expected to promptly attend all lecture and lab classes as assigned. If a class is missed, student must make up all work and get notes and/or handouts.