NOTE: This course is not intended for transfer credit.

Catalog Course Description:

A study of system analysis techniques. Management teams analyze, design and select hardware/software, and implement solutions to practical problems. A laboratory will be scheduled to enhance the student's ability to use tools and techniques of systems analysis and design in solving the problems.

Entry Level Standards:

The entering student is expected to be familiar with database concepts. The student should have moderate programming abilities in at least one high-level language as well as basic reading, writing, and word processing skills. Problem solving skills will be essential. Knowledge of Visual programming is preferred.

Prerequisites:

CST 2510 or departmental approval; ENGL 1010

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

* Suggested Reading Materials:
  * Systems Analysis and Design: An Active Approach, by George Marakas

I. Week/Unit/Topic Basis:

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<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Players in the Systems Game, Information System Building Blocks</td>
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<tr>
<td>2</td>
<td>Information System Development; Project Management</td>
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<tr>
<td>3</td>
<td>Systems Analysis</td>
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<tr>
<td>4</td>
<td>Requirements Discovery</td>
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Data Modeling and Analysis; Review, Test 1
Processing Modeling
Feasibility Analysis and the System Proposal; Systems Design
Systems Design; Application Architecture and Modeling
Database Design; Output Design and Prototyping
Input Design and Prototyping; Review, Test 2
User Interface Design
Systems Construction and Implementation; Systems Operations and Support
Object-Oriented Analysis and Modeling; Object-Oriented Design and Modeling
Presentation of Team Projects
Presentation of Team Projects; Wrap up, Review
Final Exam

II. Course Objectives*:

A. Become familiar with the steps in developing and designing a system. V, VIII
B. Become familiar with the qualifications of a systems analyst and tools that are available to an analyst for solving a problem. IV, IX, X
C. Demonstrate through group discussion how to approach a problem and come up with different solutions. I, XII
D. Develop and write a system proposal. V, XI
E. Implement a system. III, VI
F. Analyze different alternatives available in getting hardware and software. II
G. Become familiar with the major guidelines in evaluating hard-ware/ software, and vendors. VII, IX

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

III. Instructional Processes*:

Students will:

1. Analyze, design and develop a well-documented project based on end-user request. Communication Outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Information Literacy Outcome, Transitional Strategy, Active Learning Strategy

2. Participate in a software development team. Communication Outcome, Problem Solving and Decision Making Outcome, Transitional Strategies, Active Learning Strategy
3. Use professional tools to produce software components and documentation. *Technological Literacy Outcome, Transitional Strategy, Active Learning Strategy*

4. Practice elements of work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. *Personal Development Outcome*

5. Use professionally accepted methods and materials in completion of applications. *Technological Literacy Outcome, Transitional Strategy, Active Learning Strategy*

6. Present a finished product to the class. *Communication Outcome, Personal Development Outcome, Transitional Strategy, Active Learning Strategy*


8. Use the Internet as a medium for obtaining documentation and instruction. *Communication Outcome, Technological Literacy Outcome, Information Literacy Outcome, Transitional Strategy, Active Learning 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. Demonstrate an overview of general concepts of system and system analysis and design. A,C,E

2. Understand the tools which are available in providing preliminary and detailed investigation and a major guideline in developing general and detailed design specification. A,B,C,D,E

3. Develop an understanding of the system's life cycle and the tools and techniques available to the analyst. A,B,C,D,E

4. Develop an understanding of different alternative solutions to a given problem and cost/benefit analysis associated with each. A,B,C,D,E

5. Develop an understanding of the Rent/Buy/Lease methods. F

6. Develop an understanding of Request for Proposal and different methods of evaluation including benchmarking. B,D

7. Develop an understanding of different criteria used in evaluating hardware/software and making a final decision. A,B,F,G

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

**V. Evaluation**:

A. Testing Procedures:

There will be three tests. They will cover material presented in class. The test will consist of
multiple choice questions, fill-in-the-blank, true/false, and short essay questions. The points for each problem will be graded according to the degree of difficulty. The tests will be cumulative in as much as material builds upon itself. Tests are not to be missed without a valid excuse. In the unlikely event that an emergency does occur, it is the student's responsibility to contact the instructor before test time. There will be no make-up tests unless prior arrangements are made with the instructor.

B. Laboratory Expectations:

Students will learn the System Architect CASE (Computer-Aided Software Engineering) tools on major systems analysis and design concepts the first few weeks of the class.

Team Project: Students will be assigned to a project team. Teams will consist of 2 to 3 students. The team may pick a business application from work experience, or may do some research at the library and invent a system. The team will define and formulate its project during the first few weeks, then apply the tools and techniques of systems analysis and design learned in class to develop and design the team's system. Systems Architect, MS Project, various programming languages, and prototyping tools may be used in development of the team project.

The Team Project has a total of 380 points which consists of a final report (350 points) and the presentation (30 points) that will be divided among team members. Each student may receive different points based upon his/her presentation and peer evaluation. Team members who worked equally according to all the specification will receive a maximum of 130 or 190 points (depending upon the number of people on the team).

The prospect of working in a team carries the possibility that not all team members will pull their fair share of the load. For this reason, there will be a confidential peer evaluation during the semester. Individual evaluations are the property of the instructor and will not be shared with other team members under any circumstances.

C. Field Work:

Students are required to read all library materials/handouts assigned in class.

D. Other Evaluation Methods:

Students are expected to do in-class group discussion on various cases/projects. Homework assignments may consist of selected questions at the end of chapters.

E. Grading Scale:

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<tbody>
<tr>
<td>3 Tests (100 Pts. Each)</td>
<td>300 pts.</td>
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</tr>
<tr>
<td>Quizzes, Homework</td>
<td>100 pts.</td>
<td></td>
</tr>
<tr>
<td>Team Project</td>
<td>+130 or 190 pts.</td>
<td>530 or 590 pts.</td>
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</table>

A 93 - 100
B 83 - 92
C 72 - 82
D 62 - 71
F Below 62

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. Students who have excused absences must complete make-up work within two weeks.

B. Academic Dishonesty:

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. A student caught cheating may be given a grade of "F" for the course.