SYSTEMS ANALYSIS & DESIGN
CSIT 2840

Class Hours: 2.0
Laboratory Hours: 2.0
Credit Hours: 3.0
Revised: July 13, 2015

Instructor:
Office:
Phone:
E-mail:

NOTE: This course is not intended for transfer credit.

Catalog Course Description:
This course examines established and evolving methodologies for the analysis, design, and development of a business information system. Students practice software engineering principles and documentation techniques through case studies.

Entry-Level Standards:
The entering student is expected to have a working knowledge of database concepts and should have adequate programming abilities in at least one high-level language. Problem solving skills will be essential. Knowledge of Visual programming as well as object-oriented programming is preferred.

Pre-requisite(s): CSIT1520, CSIT 1810, and ENGL 1010

Textbooks and Other Supplies:

Required Textbook:


Suggested Reading Materials:

b. UML, A Beginner’s Guide, by Jason Roff
c. Software Engineering, by Roger Pressman, and Bruce Maxim
d. Object-Oriented Systems Analysis and Design, by George, Batra, Valacich, and Hoffer
e. Software Project Management, by Joel Henry
f. Introduction to Java Programming, 10th Ed., by Y. Daniel Liang, Pearson/Prentice Hall
g. Oracle Database 11 g SQL, by Jason Price, McGraw-Hill, 2008
I. WEEK/UNIT/TOPIC BASIS:

1. Chapter 1  Introduction  
   Chapter 2  Software Process and Methodology  
2. Chapter 3  System Engineering, Software Project Management  
   Chapter 23  
3. Chapter 4  Software Requirements Elicitation, Domain Modeling  
   Chapter 5  
4. Chapter 6  Architectural Design  
5. Chapter 7  Deriving Use Cases from Requirements, Actor-System Interaction  
   Chapter 8  Modeling  
6. Chapter 9  Object Interaction Modeling  
7. Chapter 10  Applying Responsibility-Assignment Patterns, Deriving Design Class Diagram  
8. Chapter 11  Deriving Use Cases from Requirements, Actor-System Interaction  
   Chapter 12  Object State Modeling for Event-Driven Systems  
9. Chapter 13  Deriving Use Cases from Requirements, Actor-System Interaction  
   Chapter 14  Activity Modeling for Transformational Systems, Modeling and design of Rule-Based Systems  
10. Chapter 15  Applying Patterns to Design a State Diagram Editor  
11. Chapter 16  Applying Patterns to Design a Persistence Framework, Implementation Considerations  
12. Chapter 17  Applying Patterns to Design a Persistence Framework, Implementation Considerations  
   Chapter 18  Software Quality Assurance, Software Testing  
13. Chapter 19  Software Quality Assurance, Software Testing  
   Chapter 20  
14. Chapter 21  Software Maintenance, Software Configuration Management  
   Chapter 22  
15. Chapter 23  
16. Chapter 24  Software Security  
17. Final Exam

II. COURSE Goals*:

The course will:

A. Build the student’s skills to analyze, design and develop a well-documented project based on end-user request. I, II, III, IV, V
B. Demonstrate through group discussion how to approach a problem and come up with different solutions. I, V
C. Enhance the student’s effective use of professionally accepted methods and materials in completion of projects. I, II, III, IV, V
D. Require students to practice elements of the work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. I
E. Expand students’ critical thinking, problem solving, goal setting, and planning skills through the performance of course assignments such as case analysis, and team case studies. I, V
F. Allow opportunities for students to practice and learn various methods, tools and techniques used by the systems analyst at each phase within the systems development cycle. I, II, III, IV, V

G. Reinforce the student’s ability to manage time and efforts as a team to achieve the project goal. I

*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. Demonstrate an overview of general concepts of system analysis and design. (A, F)
2. Construct a plan by using Project Management tools for system study through teamwork and cooperation. (A, B, C, D, E, F, G)
3. Develop an understanding of the system’s life cycle and the tools and techniques available to the analyst. (A, C, E, F)
4. Develop different alternative solutions to a given problem. (B,E,F)
5. Create Requirement Definition Document using various case studies. (A, C, E, F)
6. Create Use Cases, and other UML models using modeling tools. (C, F)
7. Develop software solution after a complete system study using various case studies. (A, F, G)

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

IV. **Evaluation**:

A. **Testing Procedures**: about 70% of grade
   Students are evaluated primarily on the basis of tests and lab exercises. Each instructor must provide full details the first week of class via a syllabus supplement. A minimum of three tests is recommended. Tests will cover material presented in class. Tests are not to be missed without a valid excuse.

B. **Laboratory Expectations**: about 20% of grade
   Lab exercises will be given using Project Management software, as well as various UML modeling tools.

C. **Field Work**: Students are required to read all library materials/handouts assigned in class.

D. **Other Evaluation Methods**: about 10% of grade
   Students are expected to do in-class group discussion on various cases/projects. Class participation, group work and homework will also comprise the final grade for the course. Each instructor must provide full details the first week of class via a syllabus supplement.
E. Grading Scale:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93 – 100</td>
<td>A</td>
</tr>
<tr>
<td>88 – 92</td>
<td>B+</td>
</tr>
<tr>
<td>83 – 87</td>
<td>B</td>
</tr>
<tr>
<td>78 – 82</td>
<td>C+</td>
</tr>
<tr>
<td>73 – 77</td>
<td>C</td>
</tr>
<tr>
<td>65 – 72</td>
<td>D</td>
</tr>
<tr>
<td>Below 65</td>
<td>F</td>
</tr>
</tbody>
</table>

V. Policies:

A. Attendance Policy:
Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. For the complete policy, please refer to the Academic Information in the online college catalog at [www.pstcc.edu/catalog](http://www.pstcc.edu/catalog).

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.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for Disabilities:
Students that 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 Disability Services (DS) in order to receive accommodations in this course. Disability Services may be contacted by sending email to disabilityservices@pstcc.edu, or by visiting Alexander 130. More information is available at [http://www.pstcc.edu/sswd/](http://www.pstcc.edu/sswd/).
D. **Computer Usage Guidelines:**
College-owned or -operated computing resources are provided for use by students of Pellissippi State Community College. All students are responsible for the use of computing resources in an effective, efficient, ethical and lawful manner. It is each individual user's responsibility to abide by the policy available at [www.pstcc.edu/ppm/pdf/08-13-05.pdf](http://www.pstcc.edu/ppm/pdf/08-13-05.pdf). Additional requirements and procedures may be required for the authorized use of specific college computing laboratories.

E. **Other:**
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.