PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

CAPSTONE LAB
CSIT2850

Class Hours: 0.0 Credit Hours: 2.0
Laboratory Hours: 4.0 Revised: Spring 2015

NOTE: This course is not intended for transfer credit.

Catalog Course Description:
This is a project-centered course in which students apply conceptual and technical knowledge acquired during their entire program of study to develop a complete IT-based solution for a client organization. Students practice software engineering principles, various methods, tools, techniques and documentation through team projects. Emphasis is placed on business systems characteristics, prototyping, and SDLC phases. This course should be taken during the student’s final semester.

Service Learning:
This course uses Service-Learning in its teaching strategy. A key component of Service Learning is the chance to apply what you are learning in the classroom to real life situations via community partners.

Entry-Level Standards:
The entering student is expected to have a good working knowledge of database concepts and should have a strong knowledge of one programming language. Problem solving skills will be essential. Experience of Visual programming as well as object-oriented programming is preferred.

Pre-requisite(s): CSIT 2200-level course or CSIT 2500-level course; and CSIT 2840; and ENGL 1010

Textbooks and Other Supplies:
Required Textbook: None

Suggested Reading Materials:
   a. Object-Oriented Modeling and Design with UML, by Blaha, and Rumbaugh
   b. Introduction to Java Programming, 10th Ed., by Y. Daniel Liang; Pearson/Prentice Hall
   c. Oracle Database 11 g or 12 C SQL, by Jason Price, McGraw-Hill
   d. Software Project Management, by Joel Henry
   e. Object-Oriented Software Engineering: An Agile Unified Methodology, by David Kung.
   g. Software Engineering by Pressman, and Maxim
   h. Object-Oriented Software Engineering using UML, Patterns, and Java, by Bruegge, and Dutoit
I. **Week/Unit/Topic Basis:**

The primary assignment in this course is to complete a software application and its associated artifacts (requirements specifications, design, prototyping, progress reports, checklists, and coding, testing, and final reports). The team project consists of meeting with members of a client organization, gathering relevant information from them, and developing a prototype information system to implement the solutions.

Suggested schedule for the semester follows:

1-2 Setting up the teams and meeting with client companies
3-7 Construct a plan, gather facts, design, and work as a team, communicating with the client as each milestone is reached
8 Walkthrough of the projects
9-13 Refine, continue development of the team project
14 Presentation of projects to outside companies

II. **Course Goals***:

The course will:

A. Build the skills to plan, analyze, design and develop a well-documented project based on end-user request. I, II, III, IV, V
B. Foster the students’ ability to demonstrate through group discussion how to approach a problem and come up with different solutions. I, V
C. Increase the students’ capacity to practice elements of the work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. I
D. Advance students’ skills at participating productively on a software development team. I
E. Require students to present a finished product to the client and class. I, II, IV
F. Require students to participate in a peer review of team projects. I
G. Build on students’ skills at managing time and efforts as a team to achieve the project goal. I, V
H. Develop students’ ability to effectively write and communicate among team members as well as with outside clients. I
I. Require teams of students to design and develop programs for local businesses or community agencies, making use of the most current programming and database technologies. I

III. **Expected Student Learning Outcomes***:

Students will be able to:

1. Construct a plan by using Project Management tools for system study through teamwork and cooperation. (A, B, D, G)
2. Create Requirement Definition Document based on client request. (A, B, C, D, H)
3. Present the software solution to class. (E)
4. Evaluate team members’ project and participation. (F)
5. Develop a software solution that meets the needs of a local business or community agency, as a team, after a complete system study of the client’s request. (A, C, D, H)
IV. Evaluation:

A. Testing Procedures:
Students are evaluated primarily on the basis of team project. There will be a walkthrough mid semester that will comprise part of the grade. In addition, there will be an oral presentation to client companies at the end of semester.

B. Laboratory Expectations: 70% of grade
Students are expected to complete a team project addressing a REAL problem, which the students will identify, at a REAL organization. Project success will depend on the joint commitments of participants including: the students working effectively together on a given team; the ongoing support of the sponsor to clarify requirements and address issues of scope and feasibility; and the instructor to coach, advise and oversee progress and help address planning and implementation challenges.

Students are expected to apply good software engineering practices in the conduct of their work. This includes organizing effective teams, planning their work, coordinating their meetings and activities with each other, their sponsor and the instructor, documenting project requirements, designing, constructing and testing their solution.

The team will define the requirements and formulate its project during the first few weeks, then apply the tools and techniques of systems analysis and design learned in previous semester to develop, design, code, and implement the team's system. CASE tools, Visual tools, UML modeling tools, Database, Project Management tools, various programming languages, and prototyping tools may be used in development of the team project. Each team will produce a document which will have the following information:

   a. Planning(project management tool to set up milestones)
   b. Gathering Requirements (interview, record review)
   c. Analysis(Use Cases, other UML modeling tools)
   d. Design(prototyping user interface)
   e. Database design
   f. Implementation(Various DB and programming languages)

C. Field Work: 15% of grade
Research for the various prototyping tools, programming languages, Database will comprise the fieldwork.

D. Other Evaluation Methods: 15% of grade
This is based on the student’s participation in the development of the project from initiation through presentation and student’s cooperation with team members. 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.
E. Grading Scale:

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<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 – 100</td>
<td>A</td>
</tr>
<tr>
<td>88 – 92</td>
<td>B+</td>
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<tr>
<td>83 – 87</td>
<td>B</td>
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<tr>
<td>78 – 82</td>
<td>C+</td>
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<tr>
<td>73 – 77</td>
<td>C</td>
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<tr>
<td>65 – 72</td>
<td>D</td>
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<tr>
<td>Below 65</td>
<td>F</td>
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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. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

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/.