Spring 2015

Syllabus

CEN4031: IT Software Engineering

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Office Hours: by appointment   **Web access** through https://my.usf.edu portal
Primary Instructional Mode: On-Line Asynchronous   **Canvas: On-line**

<u>Prerequisites:</u> EEL 4854 Minimum Grade: C, also refer to Course Catalog,

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MISSION of the University of South Florida
The University of South Florida is committed to excellence in interdisciplinary and applied learning; to the application of cutting-edge research and technology to real world needs; and to collaborative partnerships that support economic, social, and community development.

VISION/MISSION of the College of Engineering

Vision: We will develop innovative and successful individuals, enterprises, and communities through high quality interdisciplinary, collaborative, and applied learning, research and technologies.

Mission:
The mission of the USF College of Engineering is to improve the quality of life in our community by:
- Providing a high quality education for our engineering students and practicing professionals
- Creating new knowledge and solving real world problems via innovative research
- Engaging in effective community service and outreach

<u>Course Description:</u>
This course presents the fundamentals of software engineering. In this course, the student will learn how to apply various techniques used to define the process of engineering and measure its requirements, design, progress and quality. Students will learn the theory associated with the production of high quality software through the use and study of various software engineering principles, concepts and practices. In addition to conceptual presentations, students are required to complete a software development term project

<u>Course Objectives:</u>
This course is designed to make students knowledgeable of the concepts underlying the production of quality software. At the conclusion of the course, the student should have a firm understanding of the principles of software engineering and how to apply their knowledge to build software solutions. At the conclusion of the course, the student should be able to:

- Understand the software engineering profession and the process employed to develop high-quality software systems.

- Understand requirements engineering, particularly the elicitation, analysis, specification, and validation of requirements.
- Understand how all forms of design fit within the software engineering life-cycle.
- Become familiar with different design roles, principles, and practical considerations.
- Understand the effects and importance of software architecture and detailed design in large-scale systems.
- Understand software testing and different approaches for verification and validation.
- Understand project management aspects of software engineering projects.

Methods of Instruction:

This course is a completely web-based course with an asynchronous mode of delivery. This means that there are no face-to-face meetings with the instructor. However, communication between students and instructor takes place through email and Blackboard. Course and instructional material can be accessed through the webpage of the course using Canvas. Course instruction relies on completing reading assignments, viewing presentation slides, taking quizzes, and completing programming assignments. This instructional approach requires the student to take a self-motivated and active approach to learning. In order to be successful, the student must develop study habits vital to learning in an online environment, including:

- Organization skills
- Autonomous learning
- Complete tasks ahead of time
- Understand, follow, and apply written instructions
- Learn novel techniques and technologies
- Reading skills
- Written Communication skills
- Commitment to necessary study time

Course Timeline and Agenda (may change as required by the instructor)

Week	Section	Lesson Reading	Assignments and Test
1	Objective: Course Assessment - Introduction to the Course and Getting Started	Chapter 1 – The Nature of Software Reading: Page 1 to 13	None
2	Objective: - Understand software engineering - Understand project requirement	Chapter 2 – Software Engineering Reading: Page 14 to 28	Review Project Documents Quiz 1
3	Objective: - Understand software process - Understand process models	Chapter 3- The Software Process Chapter 4 – Process Models Reading: Page 29 to 65	Quiz 2
4	Objective: - Understand Agile Development - Select a project	Chapter 5 – Agile Development Reading: Page 66 to 86	Discussion Open: Agile Development Assignment: Select a Project
5	Objective:	Chapter 7– Principles That Guide	Quiz 3

	Objective	Reading/Practice	Assessment
	- Principles - Understanding Requirements	Practice Chapter 8– Understanding Requirements Reading: Page 104 to 165	
6	Objective: - Understand Requirements Modeling	Chapter 9 – Requirements Modeling: Scenario-Based Methods Reading: Page 166 to 183	Quiz 4
7	Objective: - Understand Requirements Modeling	Chapter 10 - Requirements Modeling: Class-Based Methods Chapter 11 - Requirements Modeling: Behavior Patterns, and Web/Mobile Apps Reading: Page 184 to 223	Quiz 5
8	Objective: - Test what we learned from chapters 1 to 11	Review Chapters 1 to 11	Examination 1 Assignment Due: Software Requirements
9	Objective: - Understand Design Concepts	Chapter 12 – Design Concepts Reading : Page 224 to 251	Discussion Closed: Agile Development Discussion Open: Threat Modeling
10	Objective: - Understand Architectural Design	Chapter 13 – Architectural Design Reading : Page 252 to 284	Quiz 6
11	Objective: - Understand Component-Level Design	Chapter 14 – Component-Level Design Reading: Page 285 to 316	Quiz 7
12	Objective: - Understand User Interface Design - Understand Pattern-Based Design	Chapter 15 – User Interface Design Chapter 16 – Pattern-Based Design Reading: Page 317 to 370	Quiz 8 Assignment Due: Software Design
13	Objective: - Understand Quality Management	Chapter 19 – Quality Concepts Chapter 20 – Review Techniques Chapter 21 – Software Quality Assurance Reading : Page 411 to 465	Quiz 9 Discussion Closed: Threat Modeling
14	Objective: - Understand Software Testing Strategies	Chapter 22 – Software Testing Strategies Chapter 23 – Testing Conventional Applications Reading : Page 466 to 522	Quiz 10
15	Objective: - Project Submission	Review Chapters 12-16, 19-23	Examination 2 Assignment Due: Project Test Plan Assignment Due: Project Submission

Required Texts:

Software Engineering: A Practitioner's Approach, 8th Edition   Roger S. Pressman and Bruce R. Maxim
ISBN 978-0-07-802212-8

Assessment of Student Outcomes:

Grade Component	Weight
Exam #1	25%
Exam #2	25%
Quizzes	10%
Discussions	10%
Project	30%

Note on Exams - The quizzes are given as needed to confirm knowledge of the material.

Grading Criteria and Scale:

Grade	Point Value	Score	Grade	Point Value	Score	Grade	Point Value	Score
A+	4.00	100+ -97	A	4.00	96.99-93	A-	3.67	92.99-90
B+	3.33	89.99-87	B	3.00	86.99-83	B-	2.67	82.99-80
C+	2.33	79.99-77	C	2.00	76.99-73	C-	1.67	72.99-70
D+	1.33	69.99-67	D	1.00	66.99-63	D-	.67	62.99-60
F	0	59-	FF	Any Cheating				

Technology Information

Access to the Internet (World Wide Web) is required. Use of the Explorer 8.0 or Firefox browsers are recommended for compatibility with the Canvas system, which is provided by the University of South Florida and is the courseware package to be utilized in this course. For Canvas access instructions, visit
http://www.usf.edu/Offices/TLI/Student_Resources/Canvas_Access_Instructions-student.html

YOU MUST HAVE a USF Student ID in order to sign up for your USF NetID that is required for access to Canvas.

E-mail: Every enrolled USF student receives an official USF e-mail account that ends with "mail.acomp.usf.edu." **Every official USF correspondence to students is sent to that account.** Students should go to the USF Information Technology website for "New User" information at http://www.it.usf.edu

USF Policies

Student Responsibility re: Academic Policies and Procedures: While advisors, directors, department chairs and campus administration are available to assist students in meeting academic regulations, policies and procedures, it is ultimately the student's responsibility to be acquainted with all academic regulations, policies and procedures, and to meet all requirements.

Undergraduate Catalog   http://www.usf.edu/catalog.asp

Intellectual Property: Taping lectures or classroom discussions is permitted. However, it is expected that students will request authorization from the instructor to tape a class. Notes and/or tapes of class lectures and discussions cannot be sold.

Academic Support and Accommodations for Students with Disabilities: *Students with disabilities are responsible for registering with the Office of Student Disabilities Services in order to receive special*

accommodations and services. Please notify the instructor during the first week of classes if a reasonable accommodation for a disability is needed for the course. A memorandum of accommodations from the USF Disability Services Office must accompany or follow this request during the first two weeks of the course. **Verbal requests for accommodations are not authorized by the Academic Support and Accommodations for Students with Disabilities policy. A written memorandum of accommodation is required.** *On the USF Campus contact Ms. Mary Mittag, Disability Services Liaison, 863-667-7063. The USF Office number is 813-974-4309.*

Attendance

Course Attendance at First Class Meeting. Students are required to attend the first class meeting of courses for which they registered prior to the first day of the term. Names of students who register prior to the first day of the term are printed on the first class roll for each course section. The first class roll is used by professors to drop students who do not attend the first day of class.

Students having extenuating circumstances beyond their control and who are unable to attend the first class meeting **must notify the instructor or the department prior to the first class meeting to request waiver of the first class attendance requirement.**

Students who add courses or late-register during the first week of classes will **not** be on the first class roll and, therefore, will not be dropped for non-attendance by the instructor. **Students are responsible for dropping undesired courses in these categories by the 5th day of classes to avoid fee liability and academic penalty.**

This policy is not applicable to courses in the following categories: Educational Outreach, Open University (TV), FEEDS Program, Community Experiential Learning (CEL), Cooperative Education Training, and courses that do not have regularly scheduled meeting days/times (such as, directed reading, or study, individual research, thesis, dissertation, internship, practica, etc.).

Illness. Out of concern for your health and the health of those with whom you contact and work with in class, please do not travel to class if you are ill, especially if you have a fever and know that your illness is contagious. Notify the instructor either by phone or e-mail that you will not be attending class. If you should make the attempt to attend class, thinking that you are feeling better, and are visibly ill, the instructor reserves the right to send you home out of concern for you and others.

For extended illness (e.g., missing three or more consecutive class sessions), the instructor reserves the right to require medical documentation for the necessity of the absences and clearance from a doctor that it is safe for you and others for you to return to class.

Medical or Family Emergency. If a medical or family emergency should occur and at the time you are not able to contact the instructor prior to class to indicate that you will be absent, take care of the emergency and notify the instructor of the absence and circumstances as soon as reasonable.

Religious Observances: *Students who anticipate the necessity of being absent from class due to the observation of a major religious observance must provide notice of the date(s) to the instructor, in writing, by the second class meeting.*

Academic Dishonesty: Plagiarism is defined as "literary theft" and consists of the unattributed quotation of the exact words of a published text, or the unattributed borrowing of original ideas by paraphrase from a published text. On written papers for which the student employs information gathered from books, articles or oral sources, each direct quotation, as well as ideas and facts that are not generally known to the public at large, must be attributed to its author by means of the appropriate citation procedure. Citations may be made in footnotes or within the body of the text. Plagiarism also consists of passing off as one's own, segments or the total of another person's work.

Punishment for academic dishonesty will depend on the seriousness of the offense and may include receipt of an "F" with a numerical value of zero on the item submitted, and the "F" shall be used to determine the final course grade. It is the option of the instructor to assign the student a grade of F or FF (the latter indicating academic dishonesty) in the course.

Grade Dispute/Grievance: The student must first make a reasonable effort to resolve his or her grade dispute or grievance with the instructor concerned, with the date of the incident triggering the dispute/grievance clearly identified (i.e., the issuance of a grade; the receipt of an assignment). The instructor will accommodate a reasonable request to discuss the grade or incident in question and will attempt to resolve the issue.

If the situation cannot be resolved or the instructor does not respond to the student's attempts to contact the instructor, the student will file a notification letter **within three weeks of the triggering incident** to the USF Division Director. This should be a concise written statement of particulars and must include information pertaining to how, in the student's opinion, University policies or procedures were violated. The USF Division Director will provide a copy of this statement to the instructor and to the USF Assistant Vice President for Academic Affairs. **Grade disputes or issues that have not been identified by the student within 21 days of the triggering incident will not be considered.**

If the situation cannot be resolved at the Division level, the USF Assistant Vice President for Academic Affairs will guide the student through the campus-level process. Additional information on the academic grievance process can be found in the Undergraduate and Graduate Catalogs.

Student Code of Conduct: The University of South Florida values a community based on the principles of integrity, civility, and respect. As such, the USFP community expects students to behave in a manner that supports these principles. The Student Code of Conduct is a document which describes behavior that is counteractive to these principles and how the university will hold students accountable to those inappropriate behaviors. The Student Code of Conduct can be found at the following link:

http://www.usf.edu/Documents/DeanofStudents/StudentCodeofConduct.pdf

Instructor-Specific Course Policies

Attendance/Participation.
It is in the interest of students to attend classes regularly since missing classes can affect students' performance on examinations and assignments. Considerable effort is spent in class to simplify what is otherwise a fairly wide (and, oftentimes, rather technical) subject area. Material not covered in the textbook could also be discussed in the regularly scheduled on-line sessions. Though there is no explicit grade for attendance, on days with low attendance, specific hints on exam questions or assignment issues may be provided as an incentive/reward.

Instructor's Right to Modify the Course Syllabus.
As the instructor of record of this course, I reserve the right to modify the course syllabus at any time during the course to address changes needed in content, course resources, assignments, due dates, etc. Changes will be made so as not to impact negatively students' grades.

Miscellaneous:
1. The main mode of communication between the instructor and students during off-class hours will be the myUSF portal. You are responsible to regularly check email directed to your official USF email addresses for any announcements.
2. Students do not have permission to sell notes or tapes of class lectures.

Make-up/Missed Work:

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The instructor will accommodate students who have to miss assignments or examinations due to medical emergencies in the immediate family or job-related situations. These are the only conditions under which accommodation will be considered during the semester. Should such a situation arise, the student should notify the instructor and provide necessary documentation before the missed assignment or test can be rescheduled.

Late Policy:

Assignments received after the due date will be penalized at the rate of 10% for each day or portion of a day that they are late.

Submission Guidelines:

The following are general points to be observed in all deliverables:

- Submissions must be typed (or word-processed).
- Student name, course number, and deliverable identification (project number, etc.) must be clearly stated in all deliverables and any email correspondence
- Please retain assignments until you verify that scores have been correctly posted on myUSF
- All assignments - unless otherwise noted - must be submitted through the digital drop box in Canvas
- All assignments and online assignments are **due before midnight immediately following** the regularly scheduled online discussion – **Due on SUNDAY 11:59pm** *(ex. Quiz 1/Exercise 1 for Week 1 due on Sunday at End of Week 1)* *unless otherwise posted ON THE Quiz/Exercise.*