**CALIFORNIA STATE UNIVERSITY, FULLERTON**

**DEPARTMENT OF COMPUTER SCIENCE**

**CPSC 362 – Founda=ons of So@ware Engineering**

**Spring 2021**

Description & Objectives

The primary purpose of this project-oriented course is to provide you concepts, reference material, and hands-on experience with so:ware engineering technology. Students will learn basic concepts, principles, methods, techniques and prac@ces of so:ware engineering. All aspects of the so:ware engineering fields will be covered briefly.

Prerequisites

CPSC 311

Instructor

|  |  |
| --- | --- |
| Professor Mehdi Peiravi | |
| Email: | mepeiravi@fullerton.edu |
| Office: | TBD |

Office Hours: TBD

Meeting Information

|  |  |
| --- | --- |
| Room: https://fullerton.zoom.us/j/82094400278  Time: TU 3PM-4:50PM | |
|  | TH 3PM-4:50PM |

Important Dates

CSUF’s Academic Calendar is posted online at «<http://apps.fullerton.edu/AcademicCalendar/>». The Academic Calendar contains all the campus clos[ures and holidays you should be aware of.](http://apps.fullerton.edu/AcademicCalendar/)   
CSUF’s Admissions Calendar is posted online at «<http://www.fullerton.edu/admissions/Resources/Calendars.asp>». The Admissions Calendar contain[s all the major dates with respect to adding, droppi](http://www.fullerton.edu/admissions/Resources/Calendars.asp)ng, and [withdrawing f](http://www.fullerton.edu/admissions/Resources/Calendars.asp)rom your classes.

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License. Based on a work at «<http://csufcs.com/syllabustemplate>».

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| --- | --- |
| Midterm:  Final: | TBA  TBA |

Required

Software Engineering: A Practical Approach, by Pressman, 9th Edition   
ISBN 9781259872976   
Roger S. Pressman, Bruce R. Maxim

Optional   
Many popular technical books may be read online through the campus’s subscription to Safari Books Online. From outside of the campus network, the campus library’s WWW proxy will grant you access, « http://www.library.fullerton.edu/asp/ipcheck.aspx?url=http://proquest.safaribooksonline.com/   
?uicode=calstate ». The Safari Books Online service can be accessed directly from any computer on the campus network, « http://proquest.safaribooksonline.com/ ».

Development Tool Resources   
Students interested in using Microsoft ® development tools may request a Dreamspark account at   
« http://dsreqform.ecs.fullerton.edu/ ». A student may, at no monetary cost, download full featured versions of Microsoft Visual Studio.   
Students interested in using Apple ® development tools can freely download Xcode through the App Store application bundled with OS X. Students may download Xcode directly from   
« https://developer.apple.com/xcode/ ».   
A Debian-based GNU/Linux OS virtual machine ready for students use and Debian-style installation scripts are posted online at « https://gamble.ecs.fullerton.edu/resources/ ».   
A CentOS-based shell server is available through secure shell (ssh) and secure file transfer protocol (sftp). The hostname is ecs.fullerton.edu. If your email address is malcolm@csu.fullerton.edu, then your username is   
ACAD\malcolm. If you are using a command-line ssh client, then your command to connect to   
ecs.fullerton.edu will be `ssh ‘ACAD\malcolm@ecs.fullerton.edu’`. Your password is the same password as your CSUF Portal password.   
Please consider adopting a package management system for your personal computer to facilitate adding, updating and removing the various software development tools you may wish to use.   
● Apple OS X   
○ MacPorts « http://www.macports.org/ »   
○ Fink « http://www.finkproject.org/ »   
○ Homebrew « http://brew.sh/ »   
● Microsoft Windows   
○ Chocolatey NuGet « https://chocolatey.org/ »   
○ Cygwin « http://www.cygwin.com/ »   
○ Npackd « https://npackd.appspot.com/ »   
● GNU/Linux OS   
○ dpkg « https://www.debian.org/doc/manuals/debian-faq/ch-pkgtools.en.html »   
○ rpm « http://fedoranews.org/alex/tutorial/rpm/ »

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Learning Goals

1. Students will be able to translate an informal description of a problem into a precise requirements statement.   
2. Students will develop and describe specifications for a software system.   
3. Students will determine whether a program correctly meets its requirements, either through direct observation or the use of testing tools.   
4. Students will demonstrate knowledge of a formalized software engineering process (e.g. spiral,   
waterfall, agile).   
5. Students will deliver a clear oral presentation with an appropriate tone.   
6. Students will design software exhibiting design best practices, such as clarity, structured   
programming, separation of concerns, and/or design principles and patterns   
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7. Students will produce clearly written and properly formatted documentation   
8. Students will participate in a significant software project

G.E. Requirements   
This class does not meet any CSU General Education requirements.

Course Outline

Please note that these dates are subject to change. For more details see the CPSC 362 Course Outline page.

1. The Nature of Software and Software Engineering (1, 2).   
2. The Software Process (3, 4, 5).   
3. Requirements Modeling (8, 9).   
4. Object-Oriented Concepts, Class-Based Requirements Modeling, Introduction to UML (Appendix 2, 10, Appendix 1).   
5. Human Aspects and Principles that Guide Practice and Modeling Behavior (6, 7, 11).   
6. Design Concepts and Architectural Design(12, 13) **Demo 1**   
7. Component-Level, Pattern Based Design (14, 16).   
8. User Interface and WebApp and MobileApp Design (15 ,17, 18).   
9. Quality Concepts in Software, Software Review Techniques, (19, 20, 21).   
10. Software Testing Strategies and Testing Conventional Applications (22, 23).   
11. Testing Object Oriented, Web, and Mobile Applications (24, 25, 26) **Demo 2**   
12. Managing Software Projects - Project Management, Process and Project Metrics, and Estimation for Software Projects (31, 32, 33).   
13. Project Scheduling, Risk Management, Software Process Improvement (34, 35, 37).   
14. Demos and Presentations.   
15. Review   
16. Final Exam.

Grading

Plus and minus grading is not used when determining final grades.

Final grades are computed by first finding the average score in each category described in the table below

on the right. All scores are normalized to a scale of 0 to 100 before being averaged. The average score for

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each category is then used to compute the weighted average according to the weights in the second table below.

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| --- | --- | --- |
| **Grade** | **% of Total** | |
| **Points** | | |
| A | 90–100% | |
| B | 80–89% | |
| C | 70–79% | |
| D | 60–69% | |
| F | Below 59% | |
| **Category** | **% of Final Grade** | |
| Online Quizzes | | 10% |
| Attendance/ | 20% | |
| Homework/In-  Class | | |
| Exam 1 | 20% | |
| Final Exam | 20% | |
| Group Project | 30% | |

Assignments

Programming and written assignments will be discussed in class and posted to the course website in advance of their due dates. Each assignment description will include the assignment and grading rubric. Reading assignments are posted on the course outline. It is the responsibility of the student to stay up to date with the reading and to take the online quizzes for each chapter assigned.   
Written assignments must be typeset and presented in a professional manner. Presentation, spelling and grammar can be worth up to 30% of an assignment’s grade.   
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All programming assignments must be written in a pre-approved programming language, unless specified otherwise. Coding style must conform to professional norms. At a minimum, code must be commented, have descriptive names for identifiers, and contain a comment at the top of each file with pertinent information such as the student’s name, email address, and assignment name. A plain text README.TXT must be included with each assignment submission summarizing and documenting the work submitted. For students unfamiliar with coding style, Google’s style guides are an excellent starting point,   
« https://github.com/google/styleguide », particularly their C++ style guide,   
« https://google.github.io/styleguide/cppguide.html ».

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At the start of the semester, the instructor will detail the platform and tools used to grade student   
assignments. It is the student’s responsibility to ensure that the assignments execute to his or her satisfaction on the instructor’s grading platform.   
There are approximately:

● 10 lab activities

● 1 group project (3 milestones)

● 12 weeks of reading assignments   
Exceptions are made on a case by case basis given enough time and evidence to weigh the merits of the application.

Attendance Policy

Attending class is mandatory. Missing class is not allowed unless it is excused by the instructor. Missing class as part of a documented accommodation is guaranteed to be excused. The ADA accommodated student must make a reasonable effort to coordinate any absences with the instructor.

Make Up Policy

Exams and quizzes cannot be taken after they have been given in class. Due to an act of nature, personal medical emergency, a family crisis, an act of terrorism, severe civil unrest, etc. students have 10 calendar days to petition the instructor to retake any exam/quiz or submit an assignment without late penalty.

Exceptions shall be made on a case by case basis, provided there is time to evaluate the merits of such an

application.

Participation

In the context of this course, participation is defined as the following:

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| ●  ●  ●  ●  ●  ●  ●  ●  ● | Arriving to class prepared and on time.  Taking notes.  ● Actively listening to the lecture and asking questions when appropriate.  Annotating code listings and handouts.  Bringing any required materials to class.  ● When needed/desired, seeking assistance to complete assignments.  ● Barring an emergency, not leaving the class session early unless the instructor consents.  ● Not distracting oneself or others with smartphones, games, online diversions, etc.  ● Respecting and treating the instructor and the student’s peers civilly. |

Required Material

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| ●  ●  ●  ● | A writing instrument  A notebook  A USB memory stick  ● A personal computer with the requisite development tools or regular access to a computer lab |

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Academic Dishonesty

Students are encouraged to assist one another and discuss the course materials with your peers. It is your responsibility to be aware of and follow the spirit of CSU Fullerton’s academic honesty policy which can be found at «[http://www.fullerton.edu/senate/publications\_policies\_resolutions/ups/UPS%20300/](http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%2520300/UPS%2520300.021.pdf)  
[UPS%20300.021.pdf». Academic dishonesty will not be tolerated. The University Catalog and the](http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%2520300/UPS%2520300.021.pdf) Class [Schedule provide a d](http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%2520300/UPS%2520300.021.pdf)etailed description of Academic Dishonesty under *University Regulations*.

By submitting work for evaluation, you acknowledge that you have adhered to the spirit of the university’s

academic honesty policy and that your submission is an original work by you unless otherwise directed to work in groups. Failure to follow the spirit of the academic honesty policy will result in a severely negative evaluation of the work in question and may result in involving the Department Chair and the Judicial Affairs office to seek a disciplinary remedy.

ADA Accommodations

Any student who, because of a disability, may require special arrangements in order to meet course   
requirements must register with the Office of Disability Support Services within the first week of classes. The Office of Disability Support Services’ website is «<http://www.fullerton.edu/DSS/>». They can be reached by phone at 657-278-3117 or TDD at 657-278-2786. Their email address is «[dsservices](http://www.fullerton.edu/DSS/)[@fullerton.edu](mailto:dsservices@fullerton.edu)». Their office is located in University Hall, room 101. The instructor may request ver[ification of need from th](mailto:dsservices@fullerton.edu)e Dean of Students Office. Students requesting accommodations shall inform their instructors during the first week of classes about any disability or special needs that may require specific arrangements/accommodations related to attending class sessions, completing course assignments, writing papers or quizzes, tests or examinations.

Emergency Procedures

For your own safety and the safety of others, each student is expected to read and understand the guidelines published at «<http://prepare.fullerton.edu/campuspreparedness/>». Should an emergency occur, follow the instructions g[iven to you by faculty, staff, and public safety officia](http://prepare.fullerton.edu/campuspreparedness/)ls. An emergency information recording is available by calling the Campus Operation and Emergency Closure line at 657-278-4444.

Instructional Continuity

Due to an event such as an epidemic or a natural disaster that disrupts normal campus operations, students must monitor the course Titanium site and their campus email address for any instructions and assignments that the instructor announces.

Laboratory Safety

Safety is no accident. Learning and following the appropriate safety practices and protocols is an integral part to all laboratory courses. Following the appropriate safety practices and protocols minimizes the chances of repetive stress injuries, mishandling hazardous materials, and injury to self and others.

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| 1.  2.  3. | |  |  | | --- | --- | |  | Don’t change the computer configuration. Do not add or remove the hardware or unplug the computers.  Don’t touch the instructor’s computer and other materials. |   1.  2.  Don’t change the projector’s configuration. |

«<http://riskmanagement.fullerton.edu/laboratorysafety/>».

Extra Credit

There are no opportunities for extra credit.

Recording & Transcription of Class Content

Recording class content is governed by UPS 330.230, «[http://www.fullerton.edu/senate/](http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%2520300/UPS%2520330.230.pdf)  
[publications\_policies\_resolutions/ups/UPS%20300/UPS%20330.230.pdf». Each instruc](http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%2520300/UPS%2520330.230.pdf)tor must permit [class content to be recorded or transcribed by students when mandated to](http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%2520300/UPS%2520330.230.pdf) do so by the Americans with Disabilities Act or by other federal or state laws. Any recording of class content is for private use and study and shall not be made publicly accessible without the written consent of the instructor and students in the class.

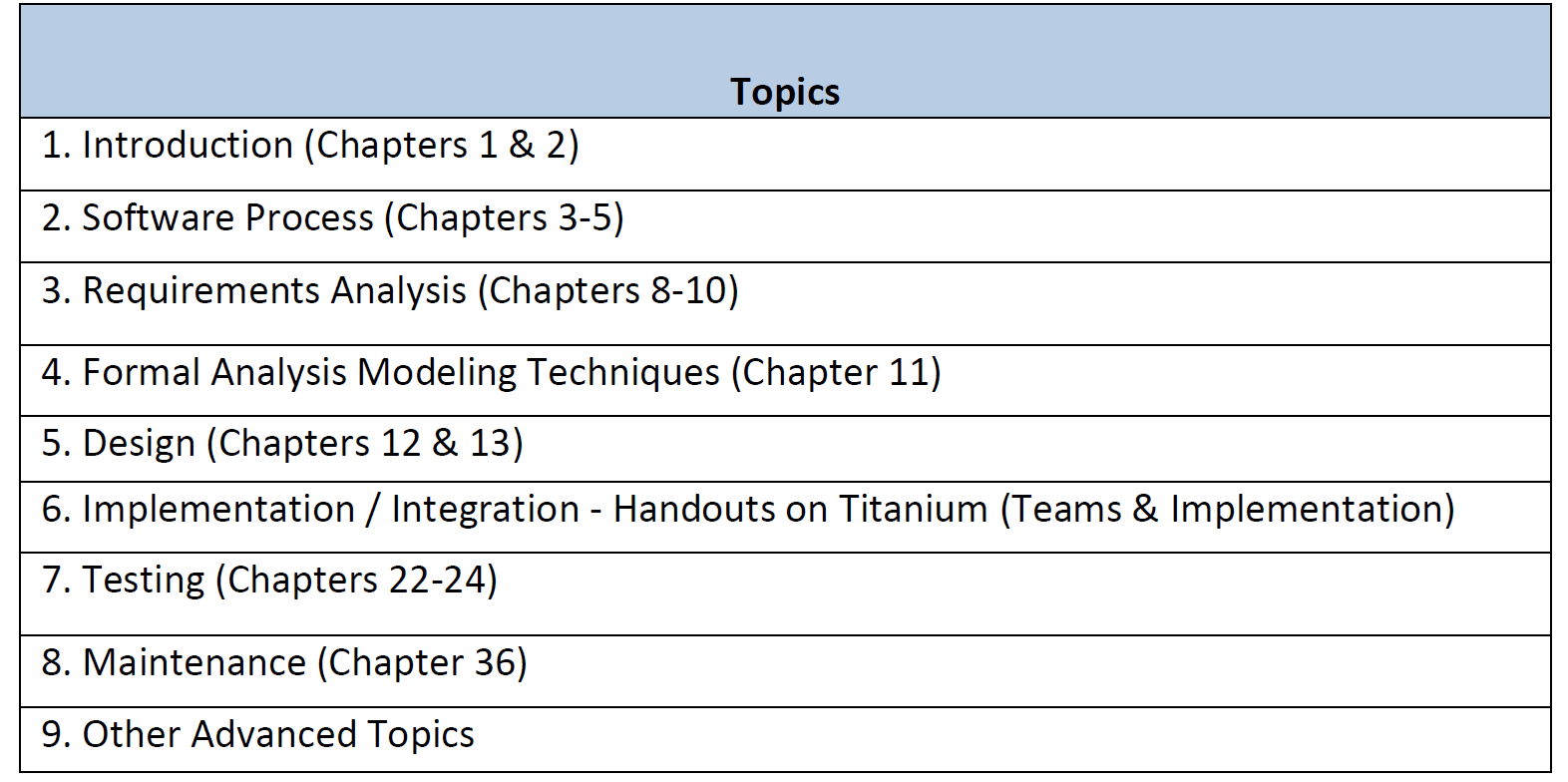
Course Rules & Classroom Management

Unless an agreement or accommodation is reached between the student and the instructor, these rules must be followed.

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| ●  ●  ●  ●  ●  ●  ●  ● | ● Attendance at all regularly scheduled lecture and discussion section is mandatory.  Do not eat during lecture.  If it makes noise, silence it.  ● Portable computer use is not allowed in lecture except for taking notes.  ● The student is responsible to be aware of any course announcements including changes to due dates and requirements.  ● Homework, programming assignments, etc. may not be submitted late.  ● Third party work (code, artwork, etc.) may not be used in student work without prior instructor   consent. Failure to gain and document instructor consent will be construed as willful academic   dishonesty.  ● When a third party’s work is incorporated into student work after gaining instructor consent, failure to wholly document the work’s origin, copyright and license will be construed as willful academic   dishonesty. |

Course Schedule:

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