CSCE 431: SOFTWARE ENGINEERING
Study Abroad in Singapore, Wintermester 2018

Lecture  MTWR 8:30am – 12:30pm  1 Jan. – 12 Jan.  SUTD Room TBD
Labs   TR 2:00pm – 4:00pm  1 Jan. – 12 Jan.  SUTD Room TBD
       TBD  15. Jan – 26 Jan.  TAMU Room TBD
Study Hall  MW 2:00pm – 4:00pm  1 Jan. – 12 Jan.  SUTD Room TBD

Course Description
Application of engineering approach to computer software design and development; life cycle models, software requirements and specification; conceptual model design; detailed design; validation and verification; design quality assurance; software design/development environments and project management.
Prerequisites: CSCE 315 or approval of instructor.

Instructor  Philip C. Ritchey
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Office Hours  By appointment

Course Page  http://faculty.cse.tamu.edu/ritchey/courses/csce431/winter18


This book is available in both trade paperback and Kindle versions at Amazon (http://www.amazon.com/EngineeringSoftware-Service-Approach-Computing-ebook/dp/B00CCEHNUM/). The Kindle version is kept up-to-date and includes live links to references and code fragments.

Course Format
Classroom material is enhanced with assigned readings. A major component of the course is teamwork on a group project. Individual work includes reading summaries, quizzes, programming assignments, and a mid-term exam.
Topics and Goals
The course topics will include:
- software lifecycle and software processes
- requirements elicitation and specification
- modeling software
- software design at various levels
- coding practices, interfaces, modularity, contracts
- verification and validation, testing
- managing a code base (version control, organizing releases, etc.)
- testing (unit and regression testing)
- practical designs (typical software architectures, design patterns, API designs)
- effort estimation

Learning Objectives:
1. gain understanding of the difficulties and risks of software projects, and knowledge of the commonly applied techniques and methods to mitigate those risks and to increase the likelihood of success of software projects.
2. learn new and increase existing skills related to practical software construction.
3. gain familiarity with the current research problems in software engineering.

Prerequisites:
You should be experienced in object-oriented software development.

Class Meetings
As a study abroad offering, the course is scheduled for 12 hours per week of Lecture and 8 hours per week of Lab and Study Hall for both weeks abroad in Singapore. Upon return to TAMU, an additional 8 hours of Lab will be scheduled over a period of 1 – 2 weeks. We will meet a total of 8 lecture periods over the course of the Wintermester. The idea is to “front-load” the lectures in the part of the term spent abroad, to cover material that might be useful when working on the programming project, and spend less lecture time during the project period itself.

As a Wintermester course, there is no final exam for this class.

Grading:
- 50% Project (Team)
- 20% Reading and Programming Assignments
- 15% Midterm Exam
- 15% Class Participation and Quizzes

The grading scale expected to be used is:
A ≥ 90% > B ≥ 80% > C ≥ 70% > D ≥ 60% > F.
In addition to this, the instructor reserves the right to provide a relative or absolute curve to the final class grade (note that such a curve has not always been applied, and should not be assumed). Also, the instructor may raise the grades of any students very near a borderline based on a subjective evaluation of class participation and effort.
**Textbooks:**
The nature of this class is that no single textbook will cover all the material needed in the course. There are a wide variety of books out there related to software development, and we might draw material from or reference several of them during the class. References to these other books will be provided when possible, but some material might be provided only in class lectures.

**Late policy:**
Late submission beyond the deadline will not receive full credit earned in general, unless a University sanctioned excuse is provided ahead of time. In general, late submission will be penalized with a loss of 25% of the total points earned per day late. Partial credit will be given based on the work submitted. For teamwork, late submissions will affect all team members. After grades distributed/returned, there is one week time limit to notify the instructor of any questions or concerns in the grading.

**Make-up policy:**
Make-ups for quizzes, assignments and exams will be given only under circumstances beyond student’s control (a university sanctioned excuse). Prior arrangements with the instructor must be made when feasible and official verification of circumstances necessitating the absence will be required.

**Academic Honesty:**
The Aggie Honor Code is: “An Aggie does not lie, cheat, or steal or tolerate those who do.” Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: [http://aggiehonor.tamu.edu/](http://aggiehonor.tamu.edu/)

**ADA Statement:**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).