**: San Jose State University, College of Engineering, Department of Computer Engineering, CMPE 273, Section 1, Enterprise Distributed Systems, Spring 2017**

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| **Instructor** | **CMPE273** | **Sithu Aung** |
| **Office Location** | **Sithu Aung** | **ENG 281** |
| **Email** | **Sithu Aung** | **Sithu.aung@sjsu.edu** |
| **Office Hours** | **Sithu Aung** | **Wednesday 5:00pm-6:00pm by Appointment Only** |
| **Class Days/Time** | **CMPE273** | **Wednesday 6:00pm–8:45pm** |
| **Classroom** | **CMPE273** | **DMH 227** |
| **Prerequisites** | **CMPE273** | **Strong in a OOP or functional programming language** |

**Course Website for CMPE273 \*\*** <https://sjsu.instructure.com>

**Course Description for CMPE 273 \*\* The objective of this course is to introduce you to the architecture principles, application protocols, Web Service API design and integration patterns for building distributed system.**

**Course Catalog Description for CMPE273 \*\* Introduction to application protocols for large scale distributed systems including object request brokers, asynchronous messaging, and Web services. Lab is based on using protocols to build distributed systems.**

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| **Program Outcome 1 (PO 1)** | **CMPE273** | **Be able to demonstrate an understanding of advanced knowledge of the practice of software engineering, from vision to analysis, design, validation and deployment.** |
| **Program Outcome 2 (PO 2)** | **CMPE273** | **Be able to tackle complex engineering problems and tasks, using contemporary engineering principles, methodologies and tools.** |
| **Program Outcome 3 (PO 3)** | **CMPE273** | **Be able to demonstrate leadership and the ability to participate in teamwork in an environment with different disciplines of engineering, science and business.** |
| **Program Outcome 4 (PO 4)** | **CMPE273** | **Be aware of ethical, economic and environmental implications of their work, as appropriate.** |
| **Program Outcome 5 (PO 5)** | **CMPE273** | **Be able to advance successfully in the engineering profession, and sustain a process of life-long learning in engineer or other professional areas.** |
| **Program Outcome 6 (PO 6)** | **CMPE273** | **Be able to communicate effectively, in both oral and written forms.** |

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| **Course Learning Objective 1(CLO 1)** | **CMPE273** | **Ability to demonstrate an understanding of architecture principles in building distributed systems.** |
| **Course Learning Objective 2 (CLO 2)** | **CMPE273** | **Ability to create application services using Web Services.** |
| **Course Learning Objective 3 (CLO 3)** | **CMPE273** | **Ability to integrate application services using Java Messaging Services.** |
| **Course Learning Objective 4 (CLO 4)** | **CMPE273** | **Ability to design and implement distributed systems with a particular emphasis on how to deal with the shared state using distributed caching.** |
| **Course Learning Objective 5 (CLO 5)** | **CMPE273** | **Ability to identify and evaluate application protocols and integration patterns for distributed system.** |

**Text Books/Readings are as follows- Web Services, by Gustavo Alonso, Fabio Casati, Harumi Kuno and Vijay Machiraju (2003). Enterprise Integration Patterns, by Gregor Hohpe and Bobby Woolf (2003). Restful Web Services, by Leonard Richardson, Sam Ruby and David Hansson (2007) .**

**Classroom Protocol is as follows- This course consists of a single lecture per week. In-class activities including hands-on labs will be given to encourage attendance. You are encouraged to consult with me on your group project to make sure it is successful.**

**Dropping and Adding protocol is as follows- Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Information on add/drops is available at** http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html**. Information about late drop is available at** http://www.sjsu.edu/sac/advising/latedrops/policy/**. Students should be aware of the current deadlines and penalties for adding and dropping classes.**

**Information on add/drops \*\* available at** http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html

**Information about late drop \*\* available at** http://www.sjsu.edu/sac/advising/latedrops/policy/

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| **Weightage** | **Pop Quizzes** | **5%** |
| **Weightage** | **Labs** | **5%** |
| **Weightage** | **Assignments** | **30%** |
| **Weightage** | **Class Project** | **20%** |
| **Weightage** | **Mid-term Exam** | **20%** |
| **Weightage** | **Final Exam** | **20%** |

**Assignments and Grading Policy are as follows- There will be no make-up exam. Absence from the scheduled final exam will result in a failing grade in the course unless documented reasons are submitted to the instructor and receiving a written approval from the instructor before the exam.**

**Hands-on Labs \*\* All labs must be done in the class or you will get no credit.**

**Project work is as follows- Students will work in groups of five students on a semester-long project. You will be required to give a presentation on a running demo and submit project documents and source code to Github for shared team project and Bitbucket for individual assignments.**

**: Students will work in groups of five students on a semester-long project.**

**Deadlines are as follows- Assignments and projects are due before class. That means that the instructor will collect all the hardcopies at the beginning of class. Late submissions incur a 20% penalty of total points for each day. Exceptions will be granted only if arranged prior to the due date or a documented illness intervenes.**

**The penalty for Late submissions \*\* 20% penalty of total points for each day.**

**Grading is done as follows- The grading will be curved. The instructor reserves the right to change the grade based on class participation, quality of work on assignments, and above-and-beyond project contribution.**

**The grading \*\* curved.**

**The Submission is done as follows- All the assignments and project code must be submitted electronically to your GitHub/Bitbucket’s repository. All assignments and the final exam must be done individually.**

**University, College, Department or Course Policies Academic integrity \*\* Students should know that the University’s Academic Integrity Policy is available at** http://www.sa.sjsu.edu/download/judicial\_affairs/Academic\_Integrity\_Policy\_S07-2.pdf**. Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University’s integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for Student Conduct and Ethical Development is available at** http://www.sa.sjsu.edu/judicial\_affairs/index.html**. Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person’s ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU’s Academic Policy F06-1 requires approval of instructors.**

**The website for Student Conduct and Ethical Development \*\* available at** <http://www.sa.sjsu.edu/judicial_affairs/index.html>.

**University, College, Department or Course Policies Campus Policy in Compliance with the American Disabilities Act \*\* If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.**

**University, College, Department or Course Policies Course Policy on Plagiarism \*\* Copying online content without correct quote is treated as plagiarism in this class. Both the person who copies and the person who facilitates the copying will be prosecuted for academic dishonesty. A student or students involved in a cheating incident involving any non-exam instrument (homework, reports, projects, or class exercises) will receive an F on that instrument, and will be reported to the judicial affairs office. Whether the report will carry a recommendation for disciplinary action will be left to my judgment. A student or students involved in a cheating incident on any quick test, the midterm exam or the final exam will receive an F in the course, and will be reported to the judicial affairs office with a recommendation for disciplinary action. Things (among many others) you may not do when working with other students (except for team work)- The term “solution” mentioned below means anything (code, design document, description, etc.) you will submit for assignments and exams. Work on an assignment together, type in solutions (separately or together) and turn in separate copies. Each works on a part of an assignment and turn in separate copies after combining solutions. Give any part of your solution (through paper, board writing, email, web posting, reading loud, letting someone else look at your screen, etc.) to other students before the assignment deadline. Things you may do when working with other students- Discuss with other students and leave the discussion with empty hands. Share assignment solutions after the assignment deadline in order to compare different techniques used for solving the problems.**

**Things (among many others) you may not do when working with other students (except for team work) \*\* The term “solution” mentioned below means anything (code, design document, description, etc.) you will submit for assignments and exams. Work on an assignment together, type in solutions (separately or together) and turn in separate copies. Each works on a part of an assignment and turn in separate copies after combining solutions. Give any part of your solution (through paper, board writing, email, web posting, reading loud, letting someone else look at your screen, etc.) to other students before the assignment deadline.**

**Things you may do when working with other students \*\* Discuss with other students and leave the discussion with empty hands.Share assignment solutions after the assignment deadline in order to compare different techniques used for solving the problems.**

**The Learning Assistance Resource Center (LARC)** website \*\* is located at http:/www.sjsu.edu/larc/**.**

**The Learning Assistance Resource Center (LARC) \*\* located in Room 600 in the Student Services Center.**

**The Learning Assistance Resource Center (LARC) \*\* is designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners.**

**The Learning Assistance Resource Center (LARC) \*\* center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development.**

**The SJSU Writing Center \*\* is located in Room 126 in Clark Hall.**

**The SJSU Writing Center \*\* is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges.**

**The SJSU Writing Center \*\* what their writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers.**

**The SJSU Writing Center** website \*\* is located at <http://www.sjsu.edu/writingcenter/about/staff/>

**The Peer Mentor Center \*\* located on the 1st floor of Clark Hall in the Academic Success Center.**

**The Peer Mentor Center \*\* staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering “roadside assistance” to peers who feel a bit lost or simply need help mapping out the locations of campus resources.**

**The Peer Mentor Center \*\* offering services that are free and available on a drop –in basis, no reservation required. The Peer Mentor Center website \*\* located at** http://www.sjsu.edu/muse/peermentor/.

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| **Course Schedule** | **Week 1 (1st February)** | **Distributed Systems Overview** |
| **Course Schedule** | **Week 2 (8th February)** | **Integration Protocols** |
| **Course Schedule** | **Week 3 (15th February)** | **Remote Procedural Calls** |
| **Submission date/ Due date** | Lab 1 | **Week 3 (15th February)** |
| **Course Schedule** | **Week 4 (22nd February)** | **RESTful Web Services** |
| **Course Schedule** | **Week 5 (1st March)** | **RESTful Web Services** |
| **Course Schedule** | **Week 6 (8th March)** | **Messaging** |
| **Submission date/ Due date** | Assignment 1 | **Week 6 (8th March)** |
| **Course Schedule** | **Week 7 (15th March)** | **Consistency Models** |
| **Course Schedule** | **Week 8 (22nd March)** | **Fault Tolerance (Replication)** |
| **Submission date/ Due date** | Lab 2 | **Week 8 (22nd March)** |
| **Course Schedule** | **Week 9 (29th March)** | **Spring Recess – NO CLASS** |
| **Submission date/ Due date** | Assignment 2 | **Week 9 (29th March)** |
| **Course Schedule** | **Week 10 (5th April)** | **Mid-term Exam** |
| **Course Schedule** | **Week 11 (12th April)** | **Fault Tolerance (Sharding)** |
| **Submission date/ Due date** | Lab 3 | **Week 11 (12th April)** |
| **Course Schedule** | **Week 12 (19th April)** | **Fault Tolerance (Consensus)** |
| **Course Schedule** | **Week 13 (26th April)** | **Performance** |
| **Submission date/ Due date** | Assignment 3 | **Week 13 (26th April)** |
| **Course Schedule** | **Week 14 (3rd May)** | **Decentralized Applications** |
| **Course Schedule** | **Week 15 (10th May)** | **Project Presentations** |
| **Submission date/ Due date** | Lab 4 | **Week 15 (10th May)** |
| **Course Schedule** | **Week 17 (24th May)** | **Final Exam 5:15 pm –7:30 pm** |