UNIVERSITY of **HOUSTON**

NATURAL SCIENCES AND MATHEMATICS

COURSE TITLE/SECTION: COSC4353 - Software Design

TIME: Mo 5:30PM - 7:00PM (Virtual)   **LOCATION: Teams**

FACULTY: Dr. Raj Singh   **OFFICE HOURS**: Virtual (Mo 5:00–5:30)

E-mail: rksingh@central.uh.edu   **Phone: NA**   **FAX: (713) 743-3589**

I.   **Course:** COSC4353 - Software Design

A.   **Catalog Description:** Declared Computer Science majors and minors only. Object-oriented paradigm, classes, object relationship, software architecture, object modeling technique, design metrics, software development patterns, practices, and principles.

B.   **Prerequisites**: COSC 3320, and MATH 3336 or COSC 3336

II.   **Course Objectives:** The objective of this course is to learn the process of software design, describe the different stages in this design process, how object-oriented and functional design strategies are complementary, design quality attributes, agile methodologies.

Upon completion of this course, students will be able to design and implement quality software solutions utilizing principles and methodologies learnt in the class.

III.   **Course Content:** List of discussion/lecture topics (subject to change)
- Introduction and Motivation
- Software System Complexity
- Design Challenges
- UML and usage
- Software Architecture
- Evolutionary Design
- Bad Design smells
- Good Design Characteristics
- Design Metrics
- Object-Oriented Design Principles
- Design Patterns and Appropriate use
- Test Driven Development
- Refactoring

- Measuring Quality of Design
- Designing Microservices

IV.   Course Structure:
We will be using blackboard for all contents including class notes, assignments, project, and exams. Microsoft teams will be used for virtual lectures, communication, and collaboration.

V.   Textbooks:
Class Notes, lecture slides, and other online resources.

VI.   Course Requirements

A.   Assignments & Project:
All assignments and project are team activities. Only one submission per team is required.

B.   Exams:
- Two midterms.
- Combination of multiple choice / short answers.
- There is no Final Exam.
- Exams will be online through Blackboard.
- There are no makeup exams for this course.

C.   Teamwork Component: Assignments and project.

VII.   Evaluation and Grading:

Assignments: 40%
Project & Demo: 20%
Exams: 40%

NOTE: The Interim Grade Policy WILL NOT be applicable for the Spring 2021 semester.

Policy on grades of I (Incomplete): The grade of "I" (Incomplete) is a conditional and temporary grade given when a student, for reasons beyond his or her control, has not completed a relatively small portion of all requirements. Sufficiently serious, documented situations include illness, death in the family, etc.

VIII.   Consultation
My office is located in room 531 in PGH.   My mailbox is located in the room 501 in PGH. My office hours are virtual and by appointment only.

IX. Tutoring
Students can take advantage of tutoring through the following:

➢ LAUNCH - www.uh.edu/ussc/launch
At LAUNCH, students can:

- Drop in for individual **Peer Tutoring** on over 100 different courses—no appointment necessary! LAUNCH is located in Cougar Village 1, room N109. http://www.uh.edu/ussc/launch/index.php.

- Attend a **Success Workshop**: http://www.uh.edu/ussc/launch/index.php.

- Set up an individual appointment with an **Academic Counselor**: **713-743-5411**

➢ Scholar Enrichment Program (SEP) provides online/remote tutoring services using Microsoft Teams - https://uh.edu/nsm/scholar-enrichment/tutoring/

Addendum: Whenever possible, and in accordance with 504/ADA guidelines, the University of Houston will attempt to provide reasonable academic accommodations to students who are registered and approved through the Center for Students with Disabilities. Students are responsible for communicating with the faculty to be sure appropriate arrangements are made. Registering with CSD is not sufficient. Communication is critical. Please call 713-743-5400 for more assistance.

Academic Honesty: It is each student's responsibility to read and understand the Academic Honesty Policy found at http://catalog.uh.edu/content.php?catoid=6&navoid=1025. There will be no tolerance towards academic dishonesty, and cheating can lead to report of a violation of the Academic Honesty policy to the UH Office of Undergraduate Academic Affairs.

Honor Code
Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: "*I understand and agree to abide by the provisions in the (University of Houston Undergraduate Academic Honesty Policy). I understand that academic honesty is taken very seriously, and in the cases of violations, penalties may include suspension or expulsion from the University of Houston."*

NOTE: The materials provided by the instructor in this course are for the use of the students enrolled in the course only. Copyrighted course materials may not be further disseminated without instructor permission. This includes sharing content to commercial course material suppliers such as Course Hero or Chegg. Students are also prohibited from sharing materials derived from the instructor's content (e.g., a student's lecture notes).

Excused Absence Policy
Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Undergraduate Excused Absence Policy](#) and [Graduate Excused Absence Policy](#) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

Recording of Class
Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Center for Students with DisABILITIES](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with *anyone* without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Religious Holy Days: Students whose religious beliefs prohibit class attendance or the completion of specific assignments on designated dates may obtain an excused absence. To do so, please make a written request for an excused absence and submit it to your instructor as soon as possible, to allow the instructor to make arrangements. For more information, see the Student Handbook.
http://catalog.uh.edu/index.php

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. Also, there is no appointment necessary for the "Let's Talk" program, which is a drop-in consultation service at convenient locations and hours around campus. http://www.uh.edu/caps/outreach/lets_talk.html#hours

Face Covering Policy (required for courses with a face-to-face component)

To reduce the spread of COVID-19, the University requires face coverings on campus including classrooms for both faculty and students. Face coverings must cover your mouth and nose and be worn throughout the class session. A mask with a valve is not considered an adequate face covering and should not be used, as it can expel exhaled air, increasing the risk to others. Eating or drinking during class is discouraged and is not an excuse for removing the face covering for any extended length of time. For additional information on the use of face coverings, please see Face Covering FAQs. Failure to comply with the requirement to wear a face covering in class will result in your being asked to leave the classroom immediately and a disciplinary referral through the Dean of Students Office. Requests for accommodations relating to the face covering policy may be directed to the Center for Students with DisABILITIES (CSD).

Required Daily Health Self-Assessment (required for courses with a face-to-face component)
Your presence in class each session means that you have completed a daily self-assessment of your health/exposure and you:
- Are NOT exhibiting any Coronavirus Symptoms
- Have NOT tested positive for COVID-19
- Have NOT knowingly been exposed to someone with COVID-19 or suspected/presumed COVID-19

If you are experiencing any COVID-19 symptoms that are not clearly related to a pre-existing medical condition, do not come to class. Please see COVID-19 Diagnosis/Symptoms Protocols for what to do if you experience symptoms and Potential Exposure to Coronavirus for what to do if you have potentially been exposed to COVID-19. Consult the (select: Undergraduate Excused Absence Policy or Graduate Excused Absence Policy) for information regarding excused absences due to medical reasons.

Resources for Online Learning
The University of Houston is committed to student success, and provides information to optimize the online learning experience through our Power-On website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

Standard Disclaimer: This syllabus is subject to change at the discretion of the instructor. Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through Blackboard / Teams.