UNIVERSITY of **HOUSTON**
NATURAL SCIENCES AND MATHEMATICS

COURSE TITLE/SECTION: COSC4351 – Fundamentals of Software Engineering

TIME: Mo/Tue 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: COSC4351 – Fundamentals Software Engineering

   A.   Catalog Description: Introduction to the concepts of software engineering. Identification of problems related to the development of large software systems. Software project planning, requirements analysis, design, implementation, quality assurance and maintenance.

   B.   Prerequisites: COSC majors and minors: A grade of C- or better in COSC 3320 and MATH 3336; CpE majors: A grade of C- or better in COSC 2320 and MATH 3336.

Course Description:
This course focuses on the system development life cycle for creating Web-based information systems analysis and design. It introduces different paradigms for developing Web software, the key stages of the life cycle and identifies key deliverables for each stage as needed.

Course Objectives:
The main objectives of this course are to cover the following topics: the software process, requirements modeling, architectural design, component-level design, user interface design, pattern-based design, software testing strategies, project management concepts, project and process metrics, estimation for software project and project scheduling.

Course Outcomes:
   Upon successful completion of the course, the student will be able to:
1.   Define the Concepts and terminology of systems and software engineering.
2.   Illustrate the difference between the different approaches and techniques of software engineering.
3.   Use the appropriate methods and practices for analyzing problems for which software is to be developed.

4.	Demonstrate an understanding of architectural design, architecture components and application design.
5.	Explain the testing phase and the testing strategies.
	6.	Demonstrate an understanding of the management of a Software project

**II.	Course Content:** List of discussion/lecture topics (subject to change)
- Introduction
- Software Process
- Requirements
- Requirements Modeling
- Design
- Coding
- Software Quality
- Project Management
- Maintenance & Reengineering
- Process Improvement

**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.

Recommended Textbook:
Roger Pressman, Software Engineering: A Practitioner's Approach, 8th edition, McGraw Hill, ISBN 0078022126

Additional References:
Ian Sommerville, Software Engineering, 9th edition, Pearson Education, Inc., publishing as Addison-Wesley, 2011. ISBN-13: 978-0-13-703515-1

**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 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/

COVID-19 Information
Students are encouraged to visit the University's COVID-19 website for important information including diagnosis and symptom protocols, on-campus testing, and vaccine information. Please check the website throughout the semester for updates.

Vaccinations

Data suggests that vaccination remains the best intervention for reliable protection against COVID-19. Students are asked to familiarize themselves with pertinent vaccine information and to consult with their health care provider. The University strongly encourages all students, faculty and staff to be vaccinated.

Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact the Justin Dart Jr. Student Accessibility Center (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

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 Justin Dart, Jr. Student Accessibility Center. 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.

Syllabus Changes
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 (*specify how students will be notified of changes*).

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.

UH Email
Please check and use your Cougarnet email for communications related to this course. To access this email, login to your Microsoft 365 account with your Cougarnet credentials.

Webcams
Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (*state when webcams are required to be on and the academic basis for requiring them to be on*). (*Example: Webcams must be turned on during exams to ensure the academic integrity of exam administration*.)

Academic Honesty Policy
High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees. All UH community members are expected to contribute to an atmosphere of the highest possible ethical standards. Maintaining such an atmosphere requires that any instances of academic dishonesty be recognized and addressed. The UH Academic Honesty Policy is designed to handle those instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy.

Title IX/Sexual Misconduct
Per the UHS Sexual Misconduct Policy, your instructor is a "responsible employee" for reporting purposes under Title IX regulations and state law and must report incidents of

sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office. Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the Title IX website at https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/.

<u>Security Escorts and Cougar Ride</u>
UHPD continually works with the University community to make the campus a safe place to learn, work, and live. Our Security escort service is designed for the community members who have safety concerns and would like to have a Security Officer walk with them, for their safety, as they make their way across campus. Based on availability either a UHPD Security Officer or Police Officer will escort students, faculty, and staff to locations beginning and ending on campus. If you feel that you need a Security Officer to walk with you for your safety please call 713-743-3333. Arrangements may be made for special needs.

Parking and Transportation Services also offers a late-night, on-demand shuttle service called Cougar Ride that provides rides to and from all on-campus shuttle stops, as well as the MD Anderson Library, Cougar Village/Moody Towers and the UH Technology Bridge. Rides can be requested through the UH Go app. Days and hours of operation can be found at https://uh.edu/af-university-services/parking/cougar-ride/.

Helpful Information

Coogs Care: https://uh.edu/dsa/coogscare/

Student Health Center: https://www.uh.edu/healthcenter/