National University
of Computer & Emerging Sciences

Department of Computer Science

CS 3009 – Software Engineering

Spring 2023

Instructor Name: Mehroze Khan
Email address: mehroze.khan@nu.edu.pk
Office Location: CS Department, MFO-009
Office Hours: Mon, Wed, Fri -11:00 a.m. to 12:00 p.m.

TA Name: Raida Munir
Email address: l191162@lhr.nu.edu.pk
Office Location: See Google Classroom
Office Hours: See Google Classroom

Course Information

Program: BS **Credit Hours:** 3 **Type:** Core
Pre-requisites (if any): CS 3004 – Software Design and Analysis (SDA)
Course Website (if any): Google classroom will be used for announcements and course material.

Course Goals

The course's approach is project-based which would provide students with the opportunity to develop skills in software development process in a hands-on setting on real world projects. During this course students would learn:

- The concept, background and importance of the term "software engineering,".
- Well- known software development process models, their key practices, and their salient features
- How to pick most suitable process models for the various types of projects.
- To estimate cost and effort of a software product.
- Requirements engineering process (elicitation, elaboration, modeling and specification of requirements
- To construct architectural, component and UI design of a software product
- About various coding practices
- To test a software application using various techniques like Black box testing (equivalence class partitioning and boundary value analysis) and white box testing (Basis path testing)
- To deliver and deploy the constructed software program.

Tentative Grading Criteria

1. Quizzes (10%)
2. Project + Assignments (20%)
3. 2 Midterm Exams (30%)
4. Final Exam (40%)

Course Textbook(s)

1. Roger S. Pressman, Software Engineering A Practitioner's Approach, 9th Edition. McGrawHill
2. Shari PFleeger, Joanne Atlee, Software Engineering: Theory and Practice, 4th Edition
3. Ian Sommerville, Software Engineering, 10th Edition
4. Roger S. Pressman, Software Engineering A Practitioner's Approach, 6th Edition. McGrawHill

Additional references and books related to the course:

5. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, Fundamentals of Software Engineering, 2nd Edition. Pearson
6. Dick Hamlet, Joe Maybee, The Engineering of Software: Technical Foundations for the Individuals. Addison Wesley
7. Ivan Marsic, Software Engineering. Rutgers

Tentative Weekly Schedule

Week	Topics to be covered	Readings
1	Course Introduction. SE Introduction. Software Process Models	[1] Chapter 1, 15 [2] Chapter 1
2	Software Process Models. Systems Engineering	[1] Chapter 2, 3 [2] Chapter 2
3	Systems Engineering. Requirements Engineering	[1] Chapter 7 [2] Chapter 1, 4 [4] Chapter 6, 8
4	Requirements Engineering	[1] Chapter 7, 8 [2] Chapter 4
5	Requirements Engineering	[1] Chapter 7, 8 [2] Chapter 4
6	**Mid I**	
7	Architecture Design	[1] Chapter 9, 10 [2] Chapter 5
8	Architecture Design	[1] Chapter 9, 10 [4] Chapter 10
9	UI Design. Detailed Design: Principles	[1] Chapter 11, 12
10	Detailed Design: Principles. Component Based Design. Component Interfaces and Module Contracts	[1] Chapter 11 [3] Chapter 17
11	Writing Programs. Testing	[2] Chapter 7, 8, 9 [3] Chapter 7, 8
12	**Mid II**	
13	Testing	[1] Chapter 19, 20
14	Delivering the System. Project Management	[1] Chapter 24, 25 [2] Chapter 3, 10
15	Project Management. Group Presentations	[1] Chapter 24, 25 [2] Chapter 3
16	Project Presentations	

Course Policies

1. All students are expected to attend all lectures from beginning to end.
2. Students can contest their grades on quizzes and midterms ONLY within a week of the release of grades.
3. To pass this course, students should get at least 50% marks and 80% attendance.
4. Quizzes may be unannounced.
5. There is no make-up for a missed quiz.
6. Project-related assignments should be submitted on due date and time. The students can submit assignments within 48 hours with a 30% penalty. The assignment may not be accepted after 48 hours.
7. Cheating is strictly not allowed. If first instance is caught, you will be awarded negative marks. If the practice continues, the case will be referred to DC Committee for further action.
8. There may be multiple project related activities, therefore you are only allowed to form groups with students in the same section.
9. You are only allowed to give the quiz with your section, so students registered in section A will not be allowed to take quiz in section B and vice versa. The quizzes taken with different sections will not be checked and attendance may not be marked.
10. This course will have absolute grading. Following is the breakdown as announced by the CS department.

Total Marks%	**Grade**
90+	A+
86 – 89	A
82 – 85	A-
78 – 81	B+
74 – 77	B
70 – 73	B-
66 – 69	C+
62 – 65	C
58 – 61	C-
54 – 57	D+
50 – 53	D
<50	F