NATIONAL UNIVERSITY
of Computer & Emerging Sciences, Lahore

Department of Computer Science

SE 1001 – Introduction to Software Engineering

SPRING 2023

Instructor Name: Anosha Khan
Email address: anosha.khan@lhr.nu.edu.pk
Office Location: E229

TA Name: Shehryar Munir
Email address: l201302@lhr.nu.edu.pk

Course Information

Program: BS **Credit Hours:** 3 **Type:** Core
Pre-requisites (if any): None
Course Website (if any): GCR will be used for announcements and course material

Course Description/Objectives/Goals:

Objective of this course is to introduce the BS Software Engineering (SE) students with the terms and concepts of software engineering. The students will be familiarized with the said concepts through case studies and examples from different software projects. In addition to the technical aspects of SE, this course also intends to introduce the students with the SE code of ethics developed by ACM and IEEE Computer Society. This way the students will know their technical as well as their ethical and social responsibilities.

Course Learning Outcomes (CLOs):

At the end of the course students will be able to:	**Domain**	**BT* Level**
Understand the pros and cons of different SDLC models	C	2
Select suitable SDLC models for different project situations.	C	3
Discuss key Software Engineering Principles	C	2
Describe different phases of software development	C	2
Apply the Divide and Conquer principle to decompose a software project into smaller work items	C	3
Describe the relationship of Software Engineering to Computer Science and Management Science disciplines	C	2

* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain.

Bloom's taxonomy Levels: 1. Knowledge, 2. Comprehension, 3. Application, 4. Analysis, 5. Synthesis, 6. Evaluation

Course Textbook

1. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, Fundamentals of Software Engineering, 2nd Edition. Pearson
2. Dick Hamlet, Joe Maybee, The Engineering of Software: Technical Foundations for the Individuals. Addison Wesley
3. Roger S. Pressman, Software Engineering A Practitioner's Approach, 8th Edition. McGrawHill

Additional references and books related to the course:

1. Ian Sommerville, Software Engineering
2. Sharri PFleeger, Joanne Atlee, Software Engineering: Theory and Practice

Tentative Weekly Schedule

Week	Topics to be covered	Readings
1	Concepts of Software Engineering (SE), Need of SE, SE and System Engineering, History of SE, Application Domains	[1] Chapter 1 [2] Chapter 1 [3] Chapter 1
2	Lehman's Laws of Software Evolution Introduction of Software Lifecycle, Software Development Process	[1] Chapter 1 [2] Chapter 1 [3] Chapter 2
3	Role of Software Engineer, SE and Business of Software Development, Open Source Software	[1] Chapter 1, 10 [2] Chapter 1, 3 [3] Chapter 1, 6
4	Significance of Domain Knowledge, Relationship of SE to Other Disciplines	[1] Chapter 1, 10 [2] Chapter 3 [3] Chapter 1, 6
5	Nature and Qualities of Software, Quality in Different Application Domains	[1] Chapter 2 [2] Chapter 1 [3] Chapter 1
6	**Mid I**	
7	SE Principles: Divide and Conquer, Rigor and Formality, Separation of Concerns, Modularity, Abstraction	[1] Chapter 3 [2] Chapter 2 [3] Chapter 2
8	SE Principles: Anticipation of Change, Generality, Incrementality . Restructuring and Refactoring.	[1] Chapter 3 [2] Chapter 2 [3] Chapter 2
9	Phases of Software Lifecycle, Software Production Process, Software Process Models	[1] Chapter 7 [2] Chapter 5 [3] Chapter 4
10	Software Process Models	[3] Chapter 5, 6
11	**Mid II**	
12	Management Activities in SE	[1] Chapter 8 [2] Chapter 4 [3] Chapter 6, 31

13	Management Activities in SE	[1] Chapter 8 [2] Chapter 4 [3] Chapter 6, 31
14	Debugging. Tools and Environments in Software Engineering	[1] Chapter 9 Additional Resources
15	Tools and Environments in Software Engineering	[1] Chapter 9 Additional Resources

(Tentative) Grading Criteria

Grading scheme: Absolute

1. Assignments + Class Activities + Project (20%)
2. 5-6 Quizzes (10%)
3. Two Midterm Exam(s) (30%)
4. Final Exam (40%)

Course Policies

1. Quizzes may be un-announced.
2. No makeup for missed quiz or assignment.
3. 80% attendance
4. Zero tolerance to plagiarism. All the parties involved will be awarded negative or Zero in first instance. Repeat of the same offense will result in (F) grade.
5. There will be programming assignments