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| Logo Fast | **NATIONAL UNIVERSITY**  **of Computer & Emerging Sciences, Lahore** |

Department of Computer Science

**CS303 – Software Engineering**

**FALL 2018**

**Instructor Name:** Dr. Ali Afzal Malik **TA Name:** Ayesha Tahreem

**Email address:** ali.afzal@nu.edu.pk **Email address:** ayeshatahreem8@gmail.com

**Office Location/Number:** N-140 (CS Department) **Office Location/Number:** FYP Lab (near Lab 4)

**Office Hours:** Fridays 1500 - 1600 **Office Hours:** Thursdays 0900 - 1100

**Course Information**

**Program:** BS (CS)

**Credit Hours:** 3

**Type:** Core

**Pre-requisite:** CS309 Object-Oriented Analysis & Design

**Course Website**: N/A

**Class Meeting Time:** CS-D - Wednesdays and Fridays 0930 - 1050

**Class Venue: CS-3**

**Course Description/Objectives/Goals**

This project-based course introduces the basic concepts, principles, and techniques of software engineering in a hands-on setting. It enables the students to perform the various activities included in each phase of the software development life cycle in addition to umbrella activities like project management.

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| **Course Learning Outcomes (CLOs)** |
| At the end of the course, students will be able to: |
| Choose an appropriate process for developing a particular software product |
| Manage (plan, monitor, and control) a software development project |
| Elicit, analyze, and specify project requirements |
| Come up with a suitable high-level and low-level design for a software product |
| Appreciate the importance of usability |
| Select an appropriate programming language for a software product |
| Test a software product using commonly used black-box and white-box testing techniques |
| Understand the value of successful deployment and delivery |
| Work in a team setting to engineer high-quality software |

**Textbook and Reference Books**

1. Software Engineering: A Practitioner’s Approach, Roger S. Pressman, 6th Edition, McGraw-Hill, 2005.
2. Object-Oriented and Classical Software Engineering, Stephen R. Schach, 5th Edition, McGraw-Hill, 2002.
3. Software Engineering, Ian Sommerville, 8th Edition, Pearson, 2007.
4. Software Engineering: Theory and Practice, Shari Lawrence Pfleeger and Joanne M. Atlee, 4th Edition, Pearson, 2009.

**Tentative Weekly Schedule**

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| **Week** | **Topics** | **Readings** | **Project Deliverables** |
| 1 | Introduction and Overview | [1] Chapter 1  [3] Chapter 1  [4] Chapter 1 |  |
| 2 | Processes | [1] Chapters 3 and 4  [3] Chapters 4 and 17  [4] Chapter 2 |  |
| 3 | Project Management | [1] Chapters 21 and 24  [3] Chapter 5  [4] Chapter 3 |  |
| 4 | Requirements Engineering | [1] Chapter 7  [3] Chapters 6 and 7  [4] Chapter 4 | Start of Week 4: Proposal |
| 5 | Analysis Modeling | [1] Chapter 8 |  |
| 6 | MIDTERM EXAM 1 |  |  |
| 6 | Design: Elements and Concepts | [1] Chapter 9 | End of Week 6: SRS V1 |
| 7 | PROJECT PRESENTATIONS: REQUIREMENTS |  |  |
| 8 | Design: Architectural Design | [1] Chapter 10  [3] Chapter 11 |  |
| 9 | Design: Component-Level Design | [1] Chapter 11 |  |
| 10 | Design: User Interface Design | [1] Chapter 12  [3] Chapter 16 |  |
| 11 | PROJECT PRESENTATIONS: ANALYSIS & DESIGN |  | Start of Week 11: SRS V2 |
| 12 | Implementation | [2] Chapter 14  [4] Chapter 7 |  |
| 12 | MIDTERM EXAM 2 |  |  |
| 13 | Testing: Strategies | [1] Chapter 13 |  |
| 14 | Testing: Tactics | [1] Chapter 14 |  |
| 15 | Deployment and Delivery | [4] Chapter 10 | End of Week 15: SRS V3 & CD |
| 16 | PROJECT PRESENTATIONS: TEST CASES & WORKING PRODUCT |  |  |

**(Tentative) Grading**

1. Quizzes (10%)
2. Project (20%)
3. Midterm Exams (15 + 15 = 30%)
4. Final Exam (40%)

**Course Policies**

1. Announcements related to different aspects of this course (e.g. lectures, quizzes, exams, etc.) may be posted on SLATE (<http://slate.nu.edu.pk/portal>). Students are expected to view the announcements section of SLATE regularly.
2. All students are expected to attend all lectures from beginning to end. Partial or full absence from a lecture without a valid reason may hamper chances for securing good grades. As per university policy, at least 80% attendance is required to take the final exam.
3. Exams will be closed-book and closed-notes. However, students will be allowed to use a single-sided, A-4 size, hand-written help sheet for the midterm exams and a double-sided, A-4 size, hand-written help sheet for the final exam. Syllabus for the final exam will be comprehensive.
4. Late submission of project deliverables is NOT allowed. Teams that do not meet the submission deadline of a deliverable will not get any credit in that particular deliverable.
5. Students are encouraged to take full advantage of instructor’s office hours. Any doubts regarding concepts covered in class or any questions regarding quizzes, projects, etc. may be clarified during office hours. In case a student is not able to make it during office hours, he/she may schedule an appointment with the instructor for another time slot.

Project teams will be formed by the instructor himself. Projects can be chosen from any domain. However, each team MUST work on a real-life project i.e. the project must have a real-client. The client must be a registered organization. Freelance individuals cannot act as clients. Client representatives will be required to participate in project presentations. A client representative must be a full-time permanent employee of the client organization. FAST-NU students cannot be used as client representatives. Project grades will be partially dependent upon feedback from the client representatives. Further details regarding the project will be conveyed later.

1. Quizzes may be announced or unannounced. A quiz will usually be about 5 – 10 minutes long and it may be given anytime during the lecture. Students missing a quiz will NOT be given a make-up quiz.
2. Students are encouraged to finish the assigned readings BEFORE the lecture. This is likely to improve lecture comprehension and class participation.
3. Students can contest their grades on quizzes and project deliverables ONLY within a week of the release of grades. Exams will be available for review according to university policies.
4. Students are expected to demonstrate the highest degree of moral and ethical conduct. Any student caught cheating, copying, plagiarizing, or using any other unfair means will be strictly dealt-with in accordance with university policies.