UNITED INTERNATIONAL UNIVERSITY

Department of Computer Science and Engineering (CSE)

Course Syllabus

1	**Course Title**	Software Engineering
2	**Course Code**	CSE 3421
3	**Trimester and Year**	Spring 2024
4	**Pre-requisites**	CSI 3411, System Analysis and Design
5	**Credit Hours**	3.0
6	**Section**	A
7	**Class Hours**	Sunday, Wednesday: 12.30 PM – 1:50 PM
8	**Class Room**	723
9	**Instructor's Name**	Samin Sharaf Somik (SSSk)
10	**Email**	samin@cse.uiu.ac.bd
11	**Office**	Room: 919
12	**Counselling Hours**	Saturday: 8:30 AM – 3 PM Sunday, Wednesday: 2 PM – 4.30 PM Tuesday: 8.30 AM – 11 AM, 2 PM – 3 PM
13	**Text Book**	Software Engineering, Roger Pressman
14	**Reference**	Lecture documents
15	**Course Contents (approved by UGC)**	The course introduces students to the concepts of requirements definition, modularity, structured design, data specifications, functional specifications, verification, documentation, software maintenance, software support tools, software project organization, quality assurance, management and communication skills.
16	**Course Outcomes (COs)**	**COs** – **Description** CO1 – Learn the basics of software engineering. CO2 – Apply modern techniques of software engineering. CO3 – Understand legal and ethical aspects.
17	**Teaching Methods**	Lectures, case studies, project developments.
18	**CO with Assessment Methods**	**CO** – **Assessment Method** – **(%)** – Attendance – 5% CO2 – Assignment – 5% CO1,CO2,CO3 – Class Tests – 20%

CO1,CO2,CO3	Mid Exam	30%		
CO1, CO2, CO3	Final exam	40%		

19 Mapping of COs and Program Outcomes

COs	Program Outcomes (POs)											
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	X											
CO2		**X**										
CO3								X				

CO	Statement	Bloom's Domain	Program Outcome	Knowledge Profile	Complex Problem	Engineering Activities
CO1	Learn the basics of software engineering.	C	PO1	**K1, K3, K5**	**P1, P3, P6**	**A1, A4**
CO2	Apply modern techniques of software engineering.	C	PO2			
CO3	Understand legal and ethical aspects.	C	PO8			

20 Lecture Outline

Week	Topics/Assignments	COs	Instruments	Assessment Method
1	Introduction to Software Engineering, Waterfall Model, Agile Model - XP	CO1	Lecture Slides and Text/ Ref.	Class Test, Mid Exam
2	Agile Model - Scrum	CO1	Lecture Slides and Text/ Ref.	Class Test, Mid Exam
3	Spiral Model, Documentation	CO1,CO1	Lecture Slides and Text/ Ref.	Class Test, Mid Exam
4	Security, Requirement Engineering	CO1,CO1	Lecture Slides and Text/ Ref.	Class Test, Mid Exam
5	Version Control - GIT	CO2	Lecture Slides and Text/ Ref.	Class Test, Mid Exam
6	Code Refactoring	CO2	Lecture Slides and Text/ Ref.	Class Test, Mid Exam
7	Design Patterns	CO2	Lecture Slides and Text/ Ref.	Class Test, Final Exam, Assignment
8	Design Patterns	CO2	Lecture Slides and Text/ Ref.	Class Test, Final Exam, Assignment
9	UI/UX Design, Testing	CO1,CO1	Lecture Slides and Text/ Ref.	Class Test, Final Exam
10	Architecture, Ethics	CO2,CO3	Lecture Slides and Text/ Ref.	Class Test, Final Exam
11	Critical Path Method	CO2	Lecture Slides and Text/ Ref.	Class Test, Final Exam, Assignment
12	Containerization, Current Trends	CO2, CO2	Lecture Slides and Text/ Ref.	Class Test, Final Exam

Appendix 1: Assessment Methods

Assessment Types	Marks
Attendance	5%
Assignments	5%
Class Tests	20%
Mid Term	30%
Final Exam	40%

Appendix 2: Grading Policy

Letter Grade	Marks %	Grade Point	Letter Grade	Marks%	Grade Point
A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
			F (Fail)	<55	0.00

Appendix-3: Program outcomes

	Program Outcomes
1	**Engineering knowledge:** Apply knowledge of mathematics, natural science, engineering fundamentals and Computer Science and Engineering to the solution of complex engineering problems.
2	**Problem analysis:** Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3	**Design/development of solutions:** Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
4	**Investigation:** Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions
5	**Modern tool usage:** Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations.
6	**The engineer and society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex engineering problems.
7	**Environment and sustainability:** Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts.
8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
9	**Individual work and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11	**Project management and finance:** Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's 13 own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12	**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.