

## Basic Information

Faculty	Satyaki Das, (Room PC-315)									
Office Hour	<p><b>Sunday:</b> 9:15 am – 10:00am (Permanent Campus: Room: PC-315)</p> <p><b>Tuesday:</b> 9:15 am – 10:00am (Permanent Campus: Room: PC-315)</p> <p><b>Monday:</b> 11:30 am – 12:40pm &amp; 2:30 pm – 4:30 pm (Permanent Campus: Room: PC-315)</p> <p><b>Wednesday:</b> 11:30 am – 12:40pm &amp; 2:30 pm – 4:30 pm (Permanent Campus: Room: PC-315)</p> <p><b>Thursday:</b> 9:30 am – 12:30 pm (Permanent Campus: Room: PC-315)</p> <p>Note: Also available by Email Appointment at other times</p> <p>satyaki.das@ulab.edu.bd</p>									
Contact Details	<p><b>Room:</b> PC315</p> <p>satyaki.das@ulab.edu.bd</p>									
Course Pre-requisites	CSE 303									
Department offering the course	Computer Science and Engineering									
Course Title	<b>Software Engineering</b>									
Course Type	Core Course									
Course Code	<b>CSE404</b>		Credit		03		Term		<b>Fall 2020</b>	
Number of Lectures	24	Number of Tutorials		0	Number of Practical			0	Total	24

## Course Details

### 1. Course Description

Most useful software products are large, complicated and built over a significant length of time. Such endeavors usually involve the participation of many different people of varied skill levels. Software Engineering is a discipline which is mainly interested with how we can build such complex systems in a systematic manner, so that a high-quality product is ensured. The discipline is necessarily large and involves a wide variety of topics. This course will concentrate mainly on Software Requirement Specification and Analysis, Design, Testing, Documentation and to a more limited extent - implementation. Students will be taught design principals, patterns and techniques. They will be challenged to design systems at a scale many of them are yet to encounter. They will be required to work in large teams and design and implement complete solutions as a part of their assessment. Over the semester, students will be expected to learn details about certain existing technologies, some of which they will also be required to master.

## 2. Course Objective

1. **Introduce** basic SW engineering methods and practices, and their appropriate application.
2. **Provide** a general understanding of software process models.
3. **Develop** the understanding of software requirements and the SRS documents.
4. **Expose** to the role of project management including software documentation.
5. **Highlight** on software testing approaches.

## 3. Intended learning outcomes of the course (ILOs)

KNOWLEDGE	1. <b>Describe</b> the objective of Software Engineering
	2. <b>Explain</b> terms related to important software engineering methods, process models, SRS, project management, testing.
SKILLS	3. <b>Understand</b> a practical problem, <b>apply</b> software engineering principles and techniques to design a software to solve the problem.
	4. <b>Identify</b> product-related relevant information from Client's input and <b>propose</b> solutions to solve the problems
ATTITUDE	5. <b>Integrate</b> with a team and be willing to resolve conflicts.
	6. Learn to clearly communicate to <b>point out</b> ideas and concerns

## 4. Mapping of Course LO and PLO:

Learning Outcome (LO) of the Course	Program Learning Outcome (PLO)											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>ILO 1</b>	MJ											
<b>ILO 2</b>	MJ	MJ										
<b>ILO 3</b>			MJ	MJ	MN							
<b>ILO 4</b>		MJ		MJ		MN						MN
<b>ILO 5</b>								MN		MJ	MN	
<b>ILO 6</b>									MJ		MN	

## 5. Contents

ILO	Topic	Teaching Strategy	Assessment Strategy	Number of Sessions
1, 2	Introduction to Software Engineering as a Discipline	Lecture Exercise	Q/A Test Assignment	4
3-5	Software Life Cycles	Lecture Exercise	Q/A Test Assignment Project	4
3-5, 6	Software Requirement Specification and Analysis	Lecture Exercise	Q/A Test Assignment Project	3
2, 3	Object Oriented Analysis and Design	Lecture	Q/A Test Assignment Project	4
2, 3	Architectural and Design patterns	Lecture Exercise	Q/A Test Assignment Project	4
3, 6	SQA, Project management, Testing	Lecture Exercise	Q/A Test Assignment Project	5
			<b>Total</b>	24

## 6. Alignment of topics of the courses with CLOs

This is already included as ILO

## 7. A. Assessment Schedule

Assessment 1	Project	Session	Due in the last week of class
Assessment 2	Assignments	Session	TBA
Assessment 3	Interviews/Viva/Presentation	Session	TBA
Assessment 4	Mid Term Final	Session	As per ULAB schedule
Assessment 5	Final	Session	As per ULAB schedule

## B. Weights of Assessments

Assessments	%
Mid-term Examination	25
Final Term Examination	25
Project+ Presentation	20+5
Attendance and Class Participation	15
Quizzes	10
Total	100

- **You must pass Project to get a passing grade in this subject.**

## C. Grading Policy

Policy	Letter Grade	Grade Point	Assessments
95% and above	A+	4.00	Outstanding
85% to below 94%	A	4.00	Superlative
80% to below 84%	A-	3.80	Excellent
75% to below 79%	B+	3.30	Very Good
70% to below 74%	B	3.00	Good
65% to below 69%	B-	2.80	Average
60% to below 64%	C+	2.50	Below Average
55% to below 59%	C	2.20	Passing
50% to below 54%	D	1.50	Probationary
below 50%	F	0.00	Fail
--	I	0.00	Incomplete
--	W	0.00	Withdrawn
--	AW	0.00	Administrative Withdrawal

## 8. Make-up Procedures

ULAB guidelines will be followed for the makeup of the Midterm and Final Examination.

## 9. List of References

Course Notes	Will be provided on Moodle, if any
Essential Books (Text Books)	Software Engineering -- A Practitioner's Approach. Sixth Edition, By Roger S. Pressman, McGraw Hill
Recommended Reference Books	Software Engineering, 9 <sup>th</sup> Edition, By Ian Sommerville, Pearson
Online Resources	Will be suggested during lecture

## Facilities Required for Teaching and Learning

Multimedia projector, white board and marker, internet connection, a computer with MS office suites

## Course Policies and Procedures

- ULAB regulations will be followed in conducting exams and evaluating answer scripts and grading.
- Failing to attend 6 or more classes will result in an automatic fail.
- Mid-term and final examinations will be held according ULAB schedules
- Students are advised to be in the classroom on time.
- Cheating and plagiarism will result in an automatic mark of zero in the assessment item.
- Quizzes will be conducted as surprise quiz. Thus, students are advised to attain class regularly.
- Any cellular phone-based activity is strictly prohibited in the class. Students are advised to keep their phones into silent mode while at the class.

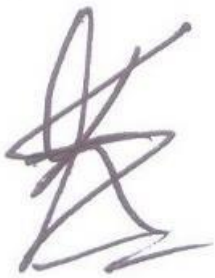
### Appendix-1: Program Learning Outcome (PLO)

No.	PLO
1.	<b>Engineering Knowledge</b>
2.	<b>Problem Analysis</b>
3.	<b>Design/Development of Solutions</b>
4.	<b>Investigation</b>
5.	<b>Modern Tool Usage</b>
6.	<b>The Engineer and Society</b>
7.	<b>Environment and Sustainability</b>
8.	<b>Ethics</b>
9.	<b>Communication</b>
10.	<b>Individual and Team Work</b>
11.	<b>Life Long Learning</b>
12.	<b>Project Management and Finance</b>

1. **Engineering Knowledge (T)** -Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems;
2. **Problem Analysis (T)** – Identify, formulate, research relevant literature and analyze complex engineering

problems, and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences;

3. **Design/Development of Solutions (A)** –Design solutions, exhibiting innovativeness, for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, economical, ethical, environmental and sustainability issues.
4. **Investigation (D)** Conduct investigation into complex problems, displaying creativeness, 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 (A & D)** -Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations;
6. **The Engineer and Society (ESSE)** -Apply reasoning based on contextual knowledge to assess societal, health, safety, legal, cultural, contemporary issues, and the consequent responsibilities relevant to professional engineering practices.
7. **Environment and Sustainability (ESSE)** -Understand the impact of professional engineering solutions in societal, global, and environmental contexts and demonstrate knowledge of and need for sustainable development;
8. **Ethics (ESSE)** –Apply professional ethics and commit to responsibilities and norms of professional engineering code of practices.
9. **Communication (S)** -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;
10. **Individual and Team Work (S)** -Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
11. **Life Long Learning (S)** -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.
12. **Project Management and Finance (S)** -Demonstrate knowledge and understanding of engineering management and financial principles and apply these to one's own work, as a member and/or leader in a team, to manage projects in multidisciplinary settings, and identify opportunities of entrepreneurship.



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*Course Coordinator/ Teacher*

**Date:** 22.10.2020

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*Head of the Department*

**Date:**