Course Contents

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Course Code and Title

❖ Course Code: **CSE 333**

  • Section:

❖ Course Title: **Software Engineering**

❖ Course Offered for : **Summer 2020**

Course Objective

❑ This course aims at introducing to the students about the product that is to be engineered and the process that provides a framework for the engineering technology.

❑ The course facilitates the students to analyze risk in software design and quality and to plan, design, develop and validate the software project.

Course Outcome(CO)

On the successful completion of the course, students will be able to,

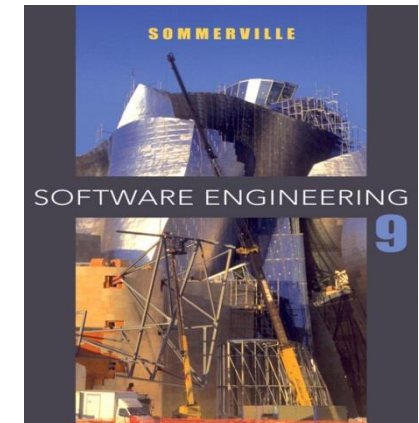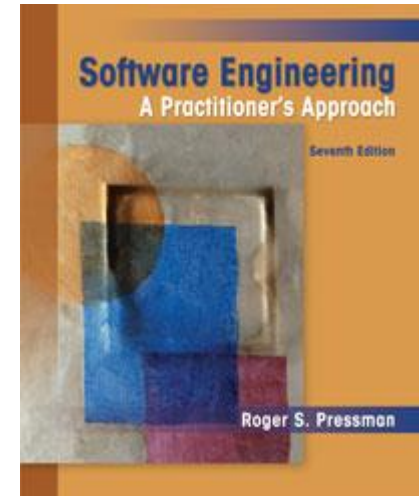|	
CO1: Explain a process model for a software project Development	Understand
CO2: Prepare the SRS (Software Requirements Specification), Design document, Project plan of a given software system.	Analyze
CO3: Apply Project Management and Requirement analysis, Principles to S/W project development.	Apply
CO4: Generate test cases using the techniques involved in selecting: (a) White Box testing (b) Block Box testing.	Analyze
CO5: Analyze the cost estimate and problem complexity using various estimation techniques.	Analyze
CO6: Understand how reviews and inspections are used as a mechanism for software quality assurance and management.	Understand

Course logistics and details

❖**Textbook:**

- **Software Engineering A practitioner's Approach**
  by Roger S. Pressman, 7th edition, McGraw Hill, 2010.

❖**Reference Material/Book(s):**

- **Software Engineering by Ian Sommerville,**
  9th edition, Addison-Wesley, 2011
- **Software Engineering,** Ivan Marsic
- Online tutorials
- A Concise Introduction to Software Engineering,
  Pankaj Jalote, Springer,2008
- Web references from Google search engine

Lecture Available

❖**Google ClassRoom:**

- **Class Code:**

  ▪ **Address: https://elearn.daffodil.university**

  ▪ https://elearn.daffodil.university/course/view.php?id=3110

  ▪ **Module Code: ascse333**

Evaluation Strategy

The course contains both theory and lab classes. The marking criteria are as: follows

Theory	Marks
Class Attendance	7
Presentation(Mandatory)	8
Assignment	5
Quizzes (3Quizes)	15
Midterm Test	25
Semester Final Examination	40
Total	**100**

Lectures Schedule

Week	Lesson	Topic	Teaching and Learning Activities (TLAi)	Textbook & Video Reference	Related CO's
1	Les. 1	Introduction and importance of Software Engineering, Applications	TLA1	Pressman: Ch. 1	CO1
	Les. 2	Basic concepts of Software Engineering and System Roadmap to Software Engineering	TLA1	(Pressman: Ch. 1)	CO1
2	Les. 3	Software Process, Framework activities, Generic process Model, Identifying the task for small, medium and large project, process pattern	TLA1	(Pressman: Ch. 2)	CO1
	Les. 4	Software Development Life-Cycle Models: Waterfall, V-shape, Incremental Model, Spiral Model, Concurrent Model, The Unified Process Model	TLA1, TLA2	(Pressman: Ch. 2)	CO1
3	Les. 5	Software Development Life-Cycle: Agile, Extreme Programming (XP), ASD, DSDM, Scrum Models, Problem analysis of different models from real life problem.	TLA1	(Pressman: Ch. 3), (Sommerville: Ch. 3)	CO1
	Les. 6	Comparative Analysis of Software Engineering Models from Traditional to Modern Methodologies	TLA1, TLA2	(Online Materials: Research Paper)	CO1, CO2
(Class Test – 1)					

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Lectures Schedule

4	Les. 7	Understanding the Requirements, Functional Requirements, Non-Functional Requirements, Use Case, Use Case description	TLA1	(Pressman: Ch. 5), (Sommerville: Ch. 4)	CO2, CO3
	Les. 8	Building requirements model, Negotiating requirements, negotiating requirements, Project Discussion and execution plan.	TLA2, TLA3	(Pressman: Ch. 5), (Sommerville: Ch. 4)	CO2, CO3
5	Les. 9	Software Modelling: Overview of UML; Use Case Modelling; Object Modelling, Dynamic modelling, State diagram	TLA1	(Pressman : Ch 6)	CO1, CO2
	Les. 10	Activity Diagram, Sequence Diagram and Swimlane diagram.	TLA1	(Pressman : Ch 6)	CO1, CO2
(Class Test – 2, Assignment – 1)					
6	Les. 11	Object-Oriented design, UI Design	TLA1	(Pressman Ch 11, 22)	CO1, CO3
	Les. 12	Design Case Study and GUI design from user activity. Review discussion	TLA3, TLA4	(Pressman : Ch15)	CO3
(MID–TERM EXAM)					

Lectures Schedule

7	Les. 13	Object Oriented design concept, Modeling, UML diagram types, Class diagram, Object diagram, component level design elements	TLA1	(Pressman : Ch 8), (Sommerville : Ch. 5)	CO3
	Les. 14	Practicing exercise on object model diagram from case study	TLA3	(Pressman : Ch 8), (Sommerville: Ch 5)	CO3
8	Les. 15	Business process modeling(BMP), Notation defining workflows, Some rules for creating BPN, BPM example and practicing, uses of BMP.	TLA2, TLA3	(Sommerville: Ch.19)	CO3
	Les. 16	Integrating Requirements and Business Process Models in BPM Projects, Extracting Business Logic from Business Process Models	TLA2, TLA3	(Online Materials)	CO3
9	Les. 17	Software Testing: Testing strategies, Test coverage, developing and recording test cases.	TLA1	(Sommerville :Ch 8)	CO4
	Les. 18	Black box, white box, stress & load Testing.	TLA3	(Pressman: Ch 18)	CO4
(Class Test-3, Assignment – 2)					

Lectures Schedule

10	Les. 19	Software Maintenance Model, Forward Engineering, Reverse Engineering	TLA1	(Sommerville: Ch 24)	CO4, CO5
	Les. 20	Software Engineering vs Reengineering Estimation of approximate maintenance cost	TLA1	(Sommerville: Ch 26), (Pressman:Ch 30)	CO4, CO5
11	Les. 21	Estimation for software projects, Estimation of development time, Project resources, Estimation of development time.	TLA1	(Pressman: Ch. 26), (Sommerville:Ch.23)	CO5
	Les. 22	Boehm's Definition of Software Project Types COCOMO, Basic, Intermediate and Complete COCOMO, Three classes of software: Organic, Semi-detach and Embedded	TLA1	(Pressman: Ch. 26), (Sommerville:Ch.23)	CO5
12	Les. 23	Software quality assurance, Software quality goals, attributes, and metrics, SQA, SQP, SQC, and SQM.	TLA3	(Pressman: Ch. 16)	CO6
	Les. 24	Software Quality Management, Reviews and Inspections, Inspection checklist	TLA2, TLA4	(Sommerville Ch: 24)	CO6
(FINAL EXAM)					

Program Outcome

[PO1] Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

[PO2] Problem analysis: Identify, formulate, research the literature and analyze complex engineering problems and reach substantiated conclusions using first principles of mathematics, the natural sciences and the engineering sciences.

[PO3] Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety as well as cultural, societal and environmental concerns.

[PO4] Investigation: Conduct investigations of complex problems, considering design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

Program Outcome

[PO5] Modern tool usage: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

[PO6] 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.

[PO7] Environment and sustainability: Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.

[PO8] Ethics: Apply ethical principles and commit to professional ethics, responsibilities and the norms of the engineering practice.

Program Outcome

[PO9] Individual work and teamwork: Function effectively as an individual and as a member or leader of diverse teams as well as in multidisciplinary settings.

[PO10] Communication: Communicate effectively about complex engineering activities with the engineering community and with society at large. Be able to comprehend and write effective reports, design documentation, make effective presentations and give and receive clear instructions.

[PO11] Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member or a leader of a team to manage projects in multidisciplinary environments.

[PO12] Life-long learning: Recognize the need for and have the preparation and ability to engage in independent, life-long learning in the broadest context of technological change.

Grading System

Numerical Grade	Letter Grade	Grade Point
80-100	A+	4.00
75-79	A	3.75
70-74	A-	3.50
65-69	B+	3.25
60-64	B	3.00
55-59	B-	2.75
50-54	C+	2.50
45-49	C	2.25
40-44	D	2.00
Less than 40	F	0.00

Important Dates

Class Starts	9 May 2020
First Quiz	
Second Quiz	
Mid Term Examination	
Third Quiz	
Class Ends	
Final Examination	
Result Publish	

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