



## **C.U.SHAH UNIVERSITY – Wadhwan City**

**FACULTY OF:** -Technology and Engineering (Diploma Engineering)

**DEPARTMENT OF:** -Computer Engineering

**SEMESTER:** - IV **CODE:** -2TE04SEE1

**NAME–** Software Engineering

### **Teaching & Evaluation Scheme:-**

Subject Code	Name of the Subject	Teaching Scheme				Evaluation Scheme							
		Th	Tu	Pr	Total	Theory				Practical (Marks)			Total
						Sessional Exam		University Exam		Internal		University	
						Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
<u>2TE04SEE1</u>	<b>Software Engineering</b>	03	00	00	03	30	1.5	70	03	---	---	----	100

### **Objectives:**

Software is the single most important technology on the world stage. Software's are used by almost all peoples for various purposes such as withdrawing payments from ATM machines, paying bills of electricity, telephone using ECS systems. Airline, railway tickets reservation online etc. People can work with computers flawlessly over a long period of time. One can also easily modify, upgrade the software without any problem or error. This course helps the students to develop, design, analyze, test & implement the software project during the courses in higher semesters of diploma programme.

### **Prerequisites:**

- Basic Knowledge about software and Computer.

### **Course Outlines:-**

Sr. No.	Course Contents	Hours
1.	<b>Introduction</b> The Software Engineering Discipline (Evolution And impact), Emergence of Software Engineering, Computer System Engineering.	04
2.	<b>Software Life Cycle Model</b> Use of Life Cycle Model, Classical Waterfall Model, Iterative Waterfall Model, Prototyping Model, Evolutionary Model, Spiral Model, Comparison of Different Life Cycle Model, Feasibility Study.	08
3.	<b>Software Project Management</b> Responsibility of a Software Project Management, Project Planning, Metrics for Project Size Estimation, COCOMO Model, Scheduling (Gantt Chart, PERT Chart), Risk	06

	Management.	
4.	<b>Requirements Analysis and Specification</b> Requirements Gathering and Analysis, Software Requirement Specification(SRS), Formal System Development Techniques(Formal Technique, Operational Semantics),Data Dictionary.	06
5.	<b>Software Design</b> Software Design, Cohesion and Coupling,Software Design Approaches (Function Oriented, Object- Oriented Design), Comparison Function oriented And Object Oriented Design.	06
6.	<b>Function Oriented and Object Oriented Software Design</b> Structured Analysis, Data Flow Diagram, Structured Design, (Flow Chart, Structure Chart), Unified ModellingLanguage (UML), UML Diagrams, Use Case Model,Class Diagram,Activity Diagram, Sequence Diagram, State Chart Diagram, Graphical User Interface, Characteristics of Good User Interface.	08
7.	<b>Coding and Testing</b> Coding, Code Review,Testing, Unit Testing, Black Box Testing, White Box Testing, Module Testing, Debugging Approaches and Guidelines.	06
8.	<b>Software Reliability and Quality Management</b> Software Reliability, Statistical Testing, Software Quality,Software Quality Management System.	04
9.	<b>Software Maintenance</b> Characteristics Of Software Maintenance, Types Of Software Maintenance, Software Reverse Engineering, Software Maintenance Process Model, And Estimation Of Software Cost.	4

#### List of Experiments:-

- To study software characteristics.
- To study different types of software applications.
- To understand and develop various process models.
- To study Logical Data Flow Diagrams.
- To Study and Draw Different UML Diagram using Different System.
- To study & Explain software measurement metrics.
- To study Project Estimation.
- To study software risks.
- To Study Software Quality Assurance (S.Q.A.) concept.
- To study different software testing methods.
- Overview of CASE Tool.

#### Learning Outcomes:-

The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning outcomes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

- Basic overall idea about how to analysis of software.
- Testing and Their Types.
- Different Types of Software Development Model.
- Software Management and Project Planning.

### **Books Recommended:-**

- Software Engineering **by Somerville**(Pearson Education PHI.
- Software Engineering, 4<sup>th</sup> Edition **by Roger S Pressman** (MGH Publication).
- Fundamentals of Software Engineering, 3<sup>rd</sup> Edition.2013, **by Rajib Mall**(PHI Publication).

### **E- References:-**

- <http://agile.csc.ncsu.edu/SEMaterials/Introduction.pdf>
- <http://ifs.host.cs.st-andrews.ac.uk/Books/SE7/Presentations/PDF/ch1.pdf>
- <http://www.codeproject.com/Tips/351122/What-is-software-testing-What-are-the-different-ty>
- <http://www.softwaretestinghelp.com/types-of-software-testing/>
- <http://www.softwaretestingsoftware.com/all-types-of-software-testing/>
- <http://www.edrawsoft.com/UML-Diagrams.php>
- [http://forum.jntuworld.com/showthread.php?3841-SOFTWARE-ENGINEERING-\(SE\)-%20%20%20Notes-%20%20%20All-8-Units](http://forum.jntuworld.com/showthread.php?3841-SOFTWARE-ENGINEERING-(SE)-%20%20%20Notes-%20%20%20All-8-Units)