

SOFTWARE ENGINEERING				
CLASS T.E. (INFORMATION TECHNOLOGY)			SEMESTER VI	
HOURS PER WEEK	LECTURES	:	04	
	TUTORIALS	:	--	
	PRACTICALS	:	02	
			HOURS	MARKS
EVALUATION SYSTEM:	THEORY		3	100
	PRACTICAL		--	--
	ORAL		--	25
	TERM WORK		--	25

1. Introduction

Software Engineering Process Paradigms – Process Models – Incremental and Evolutionary models, Agile methodology – Process and Project Metrics – Software estimation – Empirical estimation models – Cost/Effort estimation – Planning – Risk analysis – Software project scheduling, Control & Monitoring.

2. Requirements Analysis and Engineering

Prototyping – Specification – Analysis Modeling – Various Techniques in Software requirement analysis and system specification

3. Software Design

Software Design – Abstraction – Modularity – Software Architecture – Effective modular design – Cohesion and Coupling – Architectural design - Distributed system Architectures and Application Architectures, Procedural design – Data flow/Control flow oriented design – Reuse based design – case studies from different domains. User Interface Design – Human Factors – Interface standards – Design Issues – User Interface Design Process – Evaluation.

4. Software Configuration Management

Software Configuration items – SCM process – Identification of objects in software configuration – version and change control – configuration audit – status reporting, SCM standards and SCM issues.

5. Software Quality and Testing

Software Quality Assurance – Quality metrics
Software Reliability – Software testing – Path Testing – Control Structures Testing – Black Box Testing – Integration, Validation and system testing – Software Maintenance – Reverse Engineering.

6. Web Engineering

For web based applications – attributes, analysis, design and testing. Security Engineering, Service-Oriented Software Engineering, Aspect-Oriented Software Development and Test Driven Development.

References:

1. Roger Pressman, Software Engineering: A Practitioners Approach, (6th Edition), McGraw Hill, 1997.
2. I. Sommerville, Software Engineering, 7th edition, Adison Wesley, 1996.
3. Watts Humphrey, Managing software process, Pearson education, 2003.
4. James F. Peters and Witold Pedrycz, “ Software Engineering – An Engineering Approach”, Wiley.
5. Mouratidis and Giorgini. “Integrating Security and Software Engineering – Advances and Future”, IGP. ISBN – 1-59904-148-0

Term Work

Term work shall consist of at least 10 Laboratory assignments and one written test.

Marks

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| 1. Attendance (Theory and Practical) | 05 Marks |
| 2. Laboratory work (Experiments and Journal) | 10 Marks |
| 3. Test (at least one) | 10 Marks |

The final certification and acceptance of Term Work ensures the satisfactory Performance of laboratory Work and Minimum Passing in the term work.

Suggested List of Experiments

1. SRS in IEEE format for any case study.
2. Use project management tool to schedule project plan.
3. Use analysis and design tools and draw DFD / CFD.
4. Develop test cases for white box testing.
5. Assignment / code for stubs and drivers.
6. Change specifications and make different versions using any SCM tool.
7. Test Driven Development