

**SREE VIDYANIKETHAN ENGINEERING COLLEGE (Autonomous)**

SREE SAINATH NAGAR, A. RANGAMPET – 517 102

**LESSON PLAN**

**Name of the Subject** : Software Requirements and Estimation (16MT12505)

**Class & Semester** : M. Tech, I - Semester

**Name(s) of the faculty Member(s)**: Ms. V. Jyothsna

S. No.	Topic	No. of periods	Book(s) followed	Topics for Self Study
<b>UNIT – I: Software Requirements: What and Why</b>				
1.	Essential Software requirement	1	T1	How Requirement Specification And Requirement Validation can be defined for Railway Reservation system? Ref: Managing Software Requirements, Dean Leffingwell& Don Widrig, Pearson Education, 2003
2.	Good practices for requirements engineering	2	T1	
3.	Improving requirements processes	1	T1	
4.	Software requirements and risk management.	2	T1	
5.	Requirements elicitation	1	T2	
6.	Requirements analysis documentation	2	T2	
7.	Review, elicitation techniques	2	T2	
8.	Analysis models, Software quality attributes	2	T2	
9.	Risk reduction through prototyping	1	T1	
10.	Setting requirements priorities, verifying requirements quality.	1	T1	
<b>Total periods required:</b>		<b>15</b>		
<b>UNIT – II: Software Requirements Management</b>				
11.	Requirements management Principles and practices.	1	T1	How Requirements can be Reused? Ref: Mastering the requirements process, second edition, Suzanne Robertson & James Robertson, Pearson Education, 2006.
12.	Requirements attributes	1	T1	
13.	Change Management Process	2	T1	
14.	Requirements Traceability Matrix	2	T1	
15.	Links in requirements chain.	1	T1	
16.	<b>Software Requirements Modeling:</b> Use case Modeling	1	T1	
17.	Analysis Models	1	T2	
18.	Data Flow diagrams, State transition diagrams	1	T2	
19.	class diagrams, Object Analysis	1	T2	
<b>Total periods required:</b>		<b>11</b>		
<b>UNIT -III: Software Estimation</b>				
20.	<b>Software Estimation</b> Components of Software Estimations	1	T1	Illustrate the Directions in Functional Size Measurement. Ref: Software Requirements and Estimation by Rajesh Naik and Swapna
21.	Estimation methods	1	T1	
22.	Problems associated with estimation	1	T1	
23.	Key project factors that influence estimation.	1	T1	
24.	<b>Size Estimation</b> -Two views of sizing	1	T2	
25.	Function Point Analysis, Mark II FPA	2	T2	

26.	Full Function Points	1	T2	Kishore, Tata McGraw Hill, New Delhi (2001).
27.	LOC Estimation	1	T2	
28.	Conversion between size measures	1	T2	
<b>Total periods required:</b>		<b>10</b>		
<b>UNIT – IV: Effort, Schedule and Cost Estimation</b>				
29.	What is Productivity	1	T2	Mark II FP Estimation. Ref:Software Requirements and Estimation by Rajesh Naik and Swapna Kishore, Tata McGraw Hill, New Delhi(2001).
30.	Estimation Factors	1	T2	
31.	Approaches to Effort and Schedule Estimation	1	T2	
32.	COCOMO II	2	T2	
33.	Putnam Estimation Model, Bottom-up estimation	3	T2	
34.	Algorithmic models, Cost Estimation	2	T2	
<b>Total periods required:</b>		<b>10</b>		
<b>UNIT – V: Requirements Management Tools</b>				
35.	Benefits of using a requirements management tool	2	T1	DOORS, QSSRequireIT Ref: <a href="http://www-03.ibm.com/software/products/en/ratidoorfaami/">http://www-03.ibm.com/software/products/en/ratidoorfaami/</a>
36.	commercial requirements management tool	1	T1	
37.	Rational Requisite pro, Caliber – RM	2	T1	
38.	Implementing requirements management automation	1	T1	
39.	<b>Software Estimation Tools:</b> Desirable features in software estimation tools	1	T2	
40.	IFPUG, USC's COCOMO II	1	T2	
41.	SLIM (Software Life Cycle Management) Tools	1	T2	
<b>Total periods required:</b>		<b>09</b>		
<b>Grand total periods required:</b>		<b>55</b>		

#### TEXT BOOKS:

- T1. TKarl E. Weigers, "Software requirements Software Requirements," 2<sup>nd</sup> Edition, Microsoft press, 2013.
- T2. Rajesh Naik and Swapna Kishore, "Software Requirements and Estimation," Tata Mc Graw Hill, 2001.

#### REFERENCE BOOKS:

- R1. Dean Leffingwell & Don Widrig, "Managing Software Requirements," Pearson Education, 2003.
- R2. Suzanne Robertson & James Robertson, "Mastering the requirements process," 2<sup>nd</sup> Edition, Pearson Education, 2006.
- R3. Capers Jones, "Estimating Software Costs," 2<sup>nd</sup> Edition, Tata McGraw-Hill, 2007.
- R4. M.A. Parthasarathy, "Practical Software Estimation," Pearson Education, 2007.
- R5. William A. Florac & Anita D. Carleton, "Measuring the Software Process," Pearson Education, 1999.