SOFTWARE REQUIREMENTS AND ESTIMATION

Course Code:13IT2101 **L P C**
4 0 3

Pre requisites: Software Engineering.

Course Educational Objectives:
The main objective of the course is to expose the students to Software requirements and estimation. Upon completion of this course, the student should be able to:

1. Understand the good practices for requirements engineering.
2. Understand Requirements elicitation, elicitation techniques,
3. Understand analysis models, Software quality attributes.
4. Understand software estimation , size estimation ,
5. Understand Effort, Schedule and Cost Estimation.

Course Outcomes:
At the end of the course the student will be able to:

1. Gain knowledge about software requirements.
2. Analyze requirement elicitation techniques and prototyping.
3. Gain knowledge about requirement management, their principles and practices.
4. Analyze use case modeling and different data diagrams.
5. Estimating the software in terms of size, cost, effort and schedule.

UNIT-I
Software Requirements: What and Why: Essential Software requirement, Good practices for requirements engineering, Improving requirements processes, Software requirements and risk management.
Software Requirements Engineering: Requirements elicitation, requirements analysis documentation, review, elicitation techniques, analysis models, Software quality attributes, risk reduction through prototyping, setting requirements priorities, verifying requirements quality.

UNIT-II
Software Requirements Management: Requirements management Principles and practices, Requirements attributes, Change Management Process, Requirements Traceability Matrix, Links in requirements chain.

Software Requirements Modeling: Use Case Modeling, Analysis Models, Dataflow diagram, state transition diagram, class diagrams, Object analysis, Problem Frames.

UNIT- III

Software Estimation: Components of Software Estimations, Estimation methods, Problems associated with estimation, Key project factors that influence estimation.

Size Estimation: Two views of sizing, Function Point Analysis, Mark II FPA, Full Function Points, LOC Estimation, Conversion between size measures.

UNIT-IV

Effort, Schedule and Cost Estimation: What is Productivity? Estimation Factors, Approaches to Effort and Schedule Estimation, COCOMO II, Putnam Estimation Model, Algorithmic models, Cost Estimation.

UNIT-V

Tools for Requirements Management and Estimation

Requirements Management Tools: Benefits of using a requirements management tool, commercial requirements management tool, Rational Requisite pro, Caliber – RM, implementing requirements management automation.

Software Estimation Tools: Desirable features in software estimation tools, IFPUG, USC's COCOMO II, SLIM (Software Life Cycle Management) Tools.

Text Books:

1. Swapna Kishore, Rajesh Naik, *Software Requirements and Estimation*, 1st Edition, Tata Mc Graw Hill, 2001.

References:

1. Karl E. Weigers, *Software Requirements*, 2nd Edition, Microsoft Press, 2003.

Web references:

www.searchsoftwarequality.techtarget.com