SOFTWARE REQUIREMENTS AND ESTIMATION

Course Code:13IT2101

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Pre requisites: Software Engineering.
Course Outcomes:
At the end of the course, a student will be able to
CO 1:   Discuss requirements elicitation techniques.
CO 2:   Identify the software requirements for a given project.
CO 3:   Explain software estimation.
CO 4:   Estimate the software in terms of effort, schedule and cost.
CO 5:   Describe the tools for requirements management and estimation.

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