

## SOFTWARE REQUIREMENTS AND ESTIMATION

**Course Code:** 15IT2101

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<b>3</b>	<b>0</b>	<b>3</b>

**Pre requisites:** Software Engineering.

### **Course Outcomes:**

At the end of the course, a student will be able to

**CO1:** Discuss requirements elicitation techniques.

**CO2:** Identify the software requirements for a given project.

**CO3:** Explain software estimation.

**CO4:** Estimate the software in terms of effort, schedule and cost.

**CO5:** Describe the tools for requirements management and estimation.

### **UNIT-I**

(10-Lectures)

**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**

(10-Lectures)

**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**

(10-Lectures)

**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**

(10-Lectures)

**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**

(10-Lectures)

**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*, 1<sup>st</sup> Edition, Tata Mc Graw Hill, 2001.

**REFERENCES:**

1. Karl E. Weigers, *Software Requirements*, 2<sup>nd</sup> Edition, Microsoft Press, 2003.

**WEB REFERENCES:**

[www.searchsoftwarequality.techtarget.com](http://www.searchsoftwarequality.techtarget.com)