

# (CORE) CS 301: Software Metrics & Project Management

**No of lectures: 48**

## **Pre-requisites**

- Software Engineering
- Basic testing concepts

## **Objectives**

- Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale software projects.
- It examines Requirements Elicitation, Project Management, Verification and Validation and Management of Large Software Engineering Projects.
- Student learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases.

## **Chapter 1 : Introduction to Project Management [4]**

- What is a Project?
- What is Project management?
- Project phases and project life cycle
- Organizational structure
- Qualities of Project Manager

## **Chapter 2 : Project Management Components [6]**

- Project Integration Management-Project plan development and execution
- Change controls
- Configuration management

## **Chapter 3 : Scope Management [4]**

- Strategic planning
- Scope planning, definition
- Verification and control

## **Chapter 4 : Time management [2]**

- Activity planning
- Schedule development and control

<b>Chapter 5 : Cost Management</b>	<b>[2]</b>
• Cost estimation and Control	
<b>Chapter 6 : Quality Management</b>	<b>[2]</b>
• Quality planning and assurance	
<b>Chapter 7 : Human Resource Management</b>	<b>[2]</b>
• Organizational planning	
• Staff acquisition	
<b>Chapter 8 : Communication Management</b>	<b>[2]</b>
• Information distribution	
• Reporting	
<b>Chapter 9 : Risk Management</b>	<b>[2]</b>
• Risk identification	
• Quantification and control	
<b>Chapter 10 : Procurement Management</b>	<b>[2]</b>
• Solicitation	
• Contract administration	
<b>Chapter 11 : Software Metrics</b>	<b>[6]</b>
• The scope of software metrics	
• Software metrics data collection	
• Analyzing software data	
• Measuring size, structure, external attributes	
<b>Chapter 12 : Software Reliability</b>	<b>[6]</b>
• Measurement and prediction	
• Resource measurement	
• Productivity, teams and tools	
<b>Chapter 13 : Planning a measurement program</b>	<b>[4]</b>
• What is metrics plan?	
• Developing goals, questions and metrics	

- Where and When: Mapping measures to activities
- How: Measurement tools
- Who: Measurers , analyst, tools revision plans

## **Chapter 14 : Quality Standards**

[4]

- CMM
- PSP/TSP

### **Reference Books**

1. Information Technology Project Management, 6th Edition Kathy Schwalbe ISBN-13 :9781111221751 , Cenage Learning
2. Software Metrics: A rigorous and Practical Approach by Norman E. Fenton and Shari Lawrence Pfleeger, International Thomson Computer Press
3. Software Engineering: A Practioner's Approach by Roger S. Pressman ISBN: 9780071267823
4. Practical Software Metrics for Project Management and Process Improvement Robert B. Grady, Prentice hall, ISBN : 9780137203840

### **Note: -**

- Numerical should be covered on Cost Management (COCOMO), Time Management.
- For Internal Evaluation group-wise case study is compulsory.