



**SE-566**

## **SECURE SOFTWARE ENGINEERING**

### **UNIT-I**

**Security – Software Issue – Introduction:** The Problem, Software Assurance and Software Security, Threats to Software Security, Sources of Software Insecurity, The Benefits of Detecting Software Security Defects Early managing Secure Software Development.

### **UNIT-II**

**Making Software Secure: Introduction:** Defining Properties of Secure Software, Influence of the Security Software properties of Software, Assert and Specify Desired Properties

### **UNIT-III**

**Requirements Engineering for Secure Software:** Introduction: Misuse and Abuse Cases, The SQUARE Process Model, SQUARE Sample Outputs, Requirements Elicitation, Requirements Prioritization.

### **UNIT-IV**

**Secure Software Architecture and Design: Introduction: Software Security Practices for Architecture and Design:** Architectural Risk Analysis, **Software Security Knowledge for Architecture and Design:** Security Principles, Security Guidelines, and Attack Patterns.

### **UNIT-V**

**Considerations for Secure Clouding and Testing:** Introduction: Code Analysis, Coding Practices, Software Security Testing, Security Testing Considerations Throughout the SDLC. **Security and**

**Complexity: System Assembly Challenges: Introduction:** Security Failures, Functional and Attacker Perspectives for Security Analysis. Two Examples, System Complexity Drivers and Security, Deep Technical Problem Complexity.

**Governance and Managing for More Secure Software:**

**Introduction:** Governance and Security, Adapting an Enterprise Software Security Framework, Limit of Security and Project management, Maturity of Practice.

## **Suggested Reading:**

1. Julia H Allen, Sean J Barnum, Robert J Ellison, Gary McGraw, Nancy R Mead, “*Software Security Engineering: A Guide for Project Managers*”, Addison Wesley, 2008
2. Ross J Anderson, “*Security Engineering: A Guide to Building Dependable Distributed Systems*”, 2nd Edition, Wiley, 2008.
3. Howard, M. and LeBlanc, D., “*Writing Secure Code*”, 2nd Edition, Microsoft Press, 2003.

SCETM