



**STANLEY**  
**COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN**  
( Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)  
Address : Chapel Road, Abids ,Hyderabad

**SE-504**

## **SOFTWARE DASIGN AND ARCHITECTURE**

### **UNIT-I**

**The Role of Software Design:** The Nature of the Design Process, The Software Design Process, Design in the Software Development Process, Design Qualities, Expressing Ideas about a Design, Some Design Representations.

### **UNIT-II**

**Design Practices:** Stepwise Refinement, Incremental Design, Structured Systems Analysis and Structured Design, Jackson Structured Programming, Jackson System Development, Object-Oriented and Object-Based Design, A Formal Approach to Design, The Evolution of Software Design Practices.

### **Unit-III**

**Introduction:** Software Architecture, Software Architecture Importance, The Many Contexts of Software Architecture. **Quality Attributes:** Understanding Quality Attributes, Architectural Tactics and Patterns, Quality Attribute Modeling and Analysis.

### **Unit-IV**

**Architecture in the Life Cycle:** Architecture in Agile Projects, Architecture and Requirements, Designing and Architecture, Architecture - Implementation - and Testing, Architecture Reconstruction and Conformance, Architecture Evaluation.

### **Unit-V**

**Architecture in Business:** Economic Analysis of Architectures, Architecture and Software Product Lines. **The Brave New World:** Architecture in the Cloud.

### **Suggested Reading:**

1. Hong Zhu, “*Software Design Methodology: From Principles to Architectural Styles*”, Elsevier, 2005.
2. David Budgen, “*Software Design*”, 2nd Edition, Pearson Education, 2003.

3. Damian Rouson, Jim Xia, Xiaofeng Xu, “*Scientific Software Design: The Object Oriented Way*”, Cambridge University Press, 2011.
4. Mary Shaw, David Garlan, “*Software Architecture: Perspectives on an Emerging Discipline*”, Prentice Hall, 1996.
5. Len Bass, Paul Clements, and Rick Kazman, “*Software Architecture in Practice*”, 3rd Edition, Pearson Education, 2013.
6. Bruce Johnson, Walter W. Woolfolk, Robert Miller, Cindy Johnson, “*Flexible Softwar Design*”, Auerbach Publications, 2005.

SCIENTIA