**Software Architecture syllabus**

**Unit I**: Introduction: Software process and the role of modeling and analysis,

software architecture and software design, architectural styles, architectural

patterns, analysis of architectures, formal descriptions of software architectures,

architectural description languages and tools, scalability and interoperability

issues, web application architectures, case studies.

**Unit II**: Quality Attributes: Introduction to Quality Attributes, Need of quality

attributes, Understanding quality attributes, architecture and quality attributes,

achieving quality attributes. Quality attributes in software architecture

templates. Deriving duality attributes for software architectures.

Unit III: Design patterns: Pattern Systems, Patterns and Software architecture.

Software architecture and maintenance management; Design Patterns: history,

principles and expectations. Study of representative patterns like Singleton,

Factory, Adaptor, Facade, Proxy, Iterator, Observer, Mediator, Composite, chain

of ways of using patterns.

**Unit IV**: Architectural styles: Conventional Architectural styles, Applied

Architectures and Styles: Distributed and Networked, Architectures for NetworkBased Applications Architectures, Decentralized Architectures, Service-Oriented

Architectures and Web Services.

**Unit V:** Introduction to Middleware: Middleware components, programming

models, implementation, systems qualities Moving from qualities to architecture

and views ,Components and COTS, Economics- Driven Architecture, Software

product line, Software architecture future.

**Unit VI:** Web Architecture: Introduction to Web Architectures, Client side

technologies, Need of Client side technology in multi-tier architectures, Need of

server side technology in multi-tier architectures, Server side technologies.

**Text Book**:

1. Software Architecture: Foundations, Theory, and Practice, Richard N.

Taylor, Nenad Medvidovic and Eric Dashofy, Wiley, 2008.

2. Software Architecture - Perspectives on an Emerging Discipline, M. Shaw,

Prentice Hall, 1996.

3. Software Architecture in Practice, Len Bass, Paul Clements and Rick

Kazman, Pearson Education, 3rd Edition, 2012.