SERVICE ORIENTED ARCHITECTURE
(Professional Elective-VI)

Course Code : 15IT1108

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Pre-requisites:

Web Programming, Object Oriented Programming through JAVA

Course Outcomes:

At the end of the Course, the Student will be able to:

CO 1 Understand the basic principles of service orientation

CO 2 Explain the service oriented analysis techniques

CO 3 Describe technology underlying the service design

CO 4 Understand advanced concepts such as J2EE, JAX-WS, WSE, REST Protocol

CO 5 Examine various WS-* specification standards

UNIT-I **(10 Lectures)**

INTRODUCTION TO ROOTS OF SOA:

Characteristics of SOA, Comparing SOA to client-server and distributed internet architectures, Anatomy of SOA, How components in an SOA interrelate, Principles of service orientation.

UNIT-II **(10 Lectures)**

WEB SERVICES:

Service descriptions, Messaging with SOAP, Message exchange Patterns, Coordination, Atomic Transactions, Business activities, Orchestration, Choreography, Service layer abstraction, Application Service Layer, Business Service Layer, Orchestration Service Layer.

UNIT-III **(10 Lectures)**

SERVICE ORIENTED ANALYSIS:

Business-centric SOA, Deriving business services, service modeling,

Service Oriented Design, WSDL basics, SOAP basics, SOA composition guidelines, Entity, centric business service design, Application service design, Task- centric business service design.

UNIT-IV (12 Lectures)

SOA PLATFORM BASICS:

SOA support in J2EE, Java API for XML-based web services (JAX-WS), Java architecture for XML binding (JAXB), Java API for XML Registries (JAXR), Java API for XML based RPC (JAX-RPC), Web Services Interoperability Technologies (WSIT), SOA support in .NET, Common Language Runtime - ASP.NET web forms, ASP.NET web services, Web Services Enhancements (WSE), Representational State Transfer (REST) Protocol.

UNIT-V (8 Lectures)

WS-BPEL BASICS:

WS-Coordination overview, WS-Choreography, WS-Policy, WS- Security.

TEXT BOOK:

Thomas Erl, "Service-Oriented Architecture: Concepts, Technology, and Design", 1st Edition, Pearson Education, 2011.

REFERENCES:

1. Thomas Erl, "SOA Principles of Service Design", 1st Edition, The Prentice Hall Service Oriented Computing Series, 2005.
2. Newcomer, Lomow, "Understanding SOA with Web Services",1st Edition, Pearson Education, 2005.
3. SandeepChatterjee, James Webber, "Developing Enterprise Web Services, an Architect's Guide", 1st Edition, Pearson Education, 2005.

WEB REFERENCES:

1. https://www.coursera.org/learn/python-network-data/lecture/0CpCx/video-service-oriented-architectures
2. https://www.youtube.com/watch?v=wtcJzVJtX3U