

**COURSE OBJECTIVES:**

**The student should be made to:**

1. Learn XML fundamentals.
2. Be exposed to build applications based on XML.
3. Understand the key principles behind SOA.
4. Be familiar with the web services technology elements for realizing SOA.
5. Learn the various web service standards.

**UNIT I                      INTRODUCTION TO XML                      9**

XML document structure – Well formed and valid documents – Namespaces – DTD – XML Schema – X-Files.

**UNIT II                      BUILDING XML- BASED APPLICATIONS                      9**

Parsing XML – using DOM, SAX – XML Transformation and XSL – XSL Formatting – Modeling Databases in XML.

**UNIT III                      SERVICE ORIENTED ARCHITECTURE                      9**

Characteristics of SOA, Comparing SOA with Client-Server and Distributed architectures – Benefits of SOA -- Principles of Service orientation – Service layers.

**UNIT IV                      WEB SERVICES                      9**

Service descriptions – WSDL – Messaging with SOAP – Service discovery – UDDI – Message Exchange Patterns – Orchestration – Choreography –WS Transactions.

**UNIT V                      BUILDING SOA-BASED APPLICATIONS                      9**

Service Oriented Analysis and Design – Service Modeling – Design standards and guidelines -- Composition – WS-BPEL – WS-Coordination – WS-Policy – WS-Security – SOA support in J2EE

**TOTAL: 45 PERIODS**

**COURSE OUTCOMES:**

**Upon successful completion of this course, students will be able to:**

- ☐ Build applications based on XML.
- ☐ Develop web services using technology elements.
- ☐ Build SOA-based applications for intra-enterprise and inter-enterprise applications.

**TEXTBOOKS:**

1. Ron Schmelzer et al. "XML and Web Services", Pearson Education, 2002.
2. Thomas Erl, "Service Oriented Architecture: Concepts, Technology, and Design", Pearson Education, 2005.

**REFERENCES:**

1. Frank P.Coyle, "XML, Web Services and the Data Revolution", Pearson Education, 2002
2. Eric Newcomer, Greg Lomow, "Understanding SOA with Web Services", Pearson Education,2005
3. Sandeep Chatterjee and James Webber, "Developing Enterprise Web Services: An Architect's Guide", Prentice Hall, 2004.
4. James McGovern, Sameer Tyagi, Michael E.Stevens, Sunil Mathew, "Java Web Services Architecture", Morgan Kaufmann Publishers, 2003.

**HOD, CSE**