M.Sc. Computer Science Proposed Syllabus Second Year (2019-24) (Sem - I)
Web services

Semester I	Subject Code: MS11906	Lectures: 60

Learning Outcomes:

After successfully completing the course learner will be able to,

- Understand Web Services technologies and implementation model for SOA
- Implement webservices .
- Understand and implement RESTful system.

Web Services

Semester I	Subject Code: MSE11906	Lectures: 60

Objectives:
The syllabus aims in equipping students with, • Understanding the details of web services technologies like WSDL,UDDI, SOAP • Learning of how to implement and deploy web service client and server • exploring interoperability between different frameworks • Understanding the concept of RESTful system

Unit 1: Web Service and SOA fundamentals	12
Chapter 1 : Evolution and Emergence of Web Services • Evolution of distributed computing • Core distributed computing technologies • client/server, CORBA, JAVA RMI, Microsoft DCOM • Challenges in Distributed Computing • Role of J2EE and XML in distributed computing • Emergence of Web Services and Service Oriented Architecture (SOA)	4 4
Chapter 2 : Introduction to Web Services • The definition of web services • Basic operational model of web services • Tools and technologies enabling web services • Benefits and challenges of using web services	
Chapter 3: Web Services Architecture • Web services Architecture and its characteristics • core building blocks of web services • standards and technologies available for implementing web services • web services communication models • basic steps of implementing web services	4

Unit 2: SOAP: Simple Object Access Protocol	12

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BOS Members:

Dr. Reena Bharathi (Subject Expert)
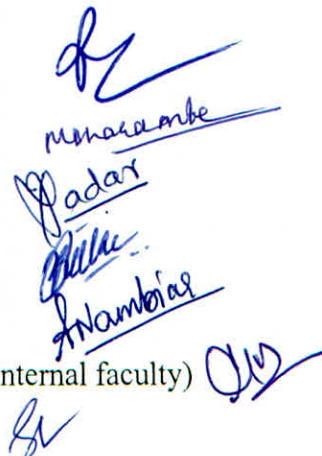
Dr.Manisha Bharambe (Subject Expert)

Dr. Jyoti Yadav (Subject Expert)

Mr Vishal Salke (Industry Expert)

Ms Amruta Nambiar(Alumni)

Prof. Ashwini Kulkarni (Chairman and Internal faculty)

Prof. Smita Borkar (Internal Faculty)

Chapter 4: SOAP: Simple Object Access Protocol
      • Inter-application communication and wire protocols
      • SOAP as a messaging protocol
      • Structure of a SOAP message
      • SOAP communication model
      • Building SOAP Web Services
      • developing SOAP Web Services using Java
      • Error handling in SOAP
      • Advantages and disadvantages of SOAP.

Unit 3: Describing and Discovering Web Services	12

Chapter 5 : WSDL
      • WSDL in the world of Web Services
      • Web Services life cycle
      • Anatomy of WSDL definition document
      • WSDL bindings
      • WSDL Tools
      • Limitations of WSDL
      • Service discovery
      • Role of service discovery in a SOA
      • Service discovery mechanisms
Chapter 6 : UDDI
      • UDDI Registries
      • Uses of UDDI Registry
      • Programming with UDDI
      • UDDI data structures
      • Support for categorization in UDDI Registries
      • Publishing API
      • Publishing information to a UDDI Registry
      • Searching information in a UDDI Registry
      • Deleting information in a UDDI Registry
      • Limitations of UDDI
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Prof. Smita Borkar (Internal Faculty)

Unit 4: The REST Architectural style	12
Chapter 7 : • Introducing HTTP • The core architectural elements of a RESTful system • Description and discovery of RESTful web services • Java tools and frameworks for building RESTful web services • JSON message format and tools and frameworks around JSON • Build RESTful web services with JAX-RS APIs • The Description and Discovery of RESTful Web Services • Design guidelines for building RESTful web services • Secure RESTful web services	

Contact Hours: 12 hours

References books

1. Pearson Edn., 2008, S. Graham and others , *Building Web Services with Java, 2nd Edition*
2. Pearson Education , Richard Monson-Haefel , *J2EE Web Services*
3. Wiley India Pvt.Ltd., R.Mogha,V.V.Preetham, *Java Web Services Programming*
4. Pearson Education, F.P.Coyle, XML, *Web Services, and the Data Revolution*

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