

SERVICE ORIENTED ARCHITECTURE (Minor Elective – I)

Semester I (Computer Engineering)

SUB CODE: MECE105-B

Teaching Scheme (Credits and Hours)

Teaching scheme				Total Credit	Evaluation Scheme					
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract.	Total
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	Marks
03	00	02	05	04	3	70	30	20	30	150

LEARNING OBJECTIVES:

The objective of this course is

- To Focus Fundamentals of Services and Service Oriented Architecture.
- To Introduce Service Oriented Computing.
- To Focus Concept and Methodology of Service Oriented Computing.
- Brief the students regarding Service Oriented Computing Features.
- To Focus on Service Oriented Computing Application.
- To publish original and high quality research results on the service-oriented computing (SOC) paradigm, models and technologies.

OUTLINE OF THE COURSE:

Unit No	Topics
1	Introduction
2	Enterprise architectures
3	Basic concepts of protocol and directory services
4	Principles of Service-Oriented Architecture
5	Principles of Service Oriented Computing

Total hours (Theory): 45

Total hours (Practical): 30

Total hours: 75

DETAILED SYLLABUS:

Sr. No	Topic	Lecture Hours	Weight age (%)
1	Introduction Brief history of information technology , Concepts of Distributed Computing, XML	3	05
2	Enterprise architectures Integration versus interoperation , J2EE ,.NET, Model Driven Architecture	4	15
3	Basic concepts of protocol and directory services Directory services ,SOAP ,WSDL ,UDDI ,Web Services: Definition, Architectures and Standards	8	20
4	Principles of Service-Oriented Architecture Service-orientation and object orientation,SOA Standards Stack, SOA with Web Services, Key Principles of SOA,WS-* Specifications: Message Exchange Pattern,Coordination,Atomic Transactions,Business Activities,Orchestration,Choreography,WS-Addressing,WSReliableMessaging,WS-Policy (including WS-PolicyAttachments and WSPolicyAssertions), WS-MetadataExchange,WS-Security (including XMLEncryption,XML-Signature, and SAML),WS-Notification Framework (includingWS-BaseNotification, WS-Topics, and WS-BrokeredNotification),WS-Eventing, Services Innovation , Bridging Business and IT Architecture , Solution Lifecycle , Solution Reference Architectures ,	15	30
5	Principles of Service-Oriented Computing RPC versus Document Orientation, Service Life Cycle, Service Creation ,Service Design and Build, Service Deployment, Publish Web service using UDDI,Service Discovery ,Service Selection ,Service Composition ,Service Execution and Monitoring,Service Termination ,Service Composition and Modeling Business Processes with Business Process Execution Language (BPEL)	15	30

INSTRUCTIONAL METHOD AND PEDAGOGY (Continuous Internal Assessment (CIA) Scheme)

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lecture and laboratory which carries 10 marks in overall evaluation.
- Two internal exams will be conducted and average of the same will be converted to equivalent of 15 Marks as a part of internal theory evaluation.
- Assignments based on the course content will be given to the students for each unit and will be evaluated at regular interval evaluation.
- Surprise tests/Quizzes/Seminar/tutorial will be conducted having a share of five marks in the overall internal evaluation.

- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments shall be performed in the laboratory related to course contents.

STUDENTS LEARNING OUTCOMES:

- On successful completion of the course, the student will be having the basic knowledge of Service paradigm and Computing and thus being prepared with the programming spectrum in depth as desired.
- Student will be able to effectively design service for end users.
- Student will be able to publish original and high quality research results on the service-oriented computing (SOC) paradigm, models and technologies.

REFERENCE BOOKS:

1. Service-Oriented Computing: Semantics, Processes, Agents, Munindar P. Singh and Michael N.Huhns, John Wiley & Sons, Ltd., 2005
2. Thomas Erl, “Service-Oriented Architecture: Concepts, Technology, and Design”, Pearson Education.
3. SOA Using Java™ Web Services by Mark D. Hansen
4. SOA Design Pattern By Thomas Erl PHI
5. Service Oriented Architecture and Design Strategies ,Michael Rosen , Wiley India
6. SOA with .NET by Rajbalasubhramaniam Prentice Hall

LIST OF PRACTICALS:

Sr. No	Name of Practical
1	Develop RMI application with deposit and withdrawal operations.
2	Develop CORBA application with deposit and withdrawal operations.
3	Build web service for deposit and withdrawal using JAX-RPC.
4	Create web service in Net Beans and consume it.
5	Create web service in .NET and create client to consume this web service.
6	Create java client to consume web service created in .NET
7	Create .NET client to consume web service created in JAVA.
8	Create a SOAP based program in .NET to consume .NET web service.
9	Create a SOAP based program in .NET to consume JAVA web service.
10	Minor Project