



**DHANALAKSHMI SRINIVASAN ENGINEERING COLLEGE  
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to Anna University, Chennai)  
Re-Accredited by NAAC with 'A' Grade  
Accredited by NBA for AERO, BME, CSE, ECE, EEE, IT & MECH.  
**PERAMBALUR-621212, TAMILNADU, INDIA.**  
Website: [www.dsengg.ac.in](http://www.dsengg.ac.in)



**THEORY COURSE PLAN (2025 – 2026 EVEN SEMESTER)**

<b>Name of the Faculty</b>				
<b>Designation/Department</b>	Assistant Professor / Information Technology			
<b>Course Code/Name</b>	<b>U20IT842 /SERVICE ORIENTED ARCHITECTURE</b>			
<b>Year/Section/Department</b>	IV/IT			
<b>Credits Details</b>	L:3	T:0	P:0	C:3
<b>Total Contact Hours Required</b>	45			

**Syllabus:**

<b>UNIT I FUNDAMENTALS OF SOA</b>	<b>No. of Periods 9</b>
Introduction-Defining SOA-Evolution of SOA-Service Oriented Enterprise-Comparing SOA to client-Server and distributed internet architectures-Basic SOA Architecture-concepts-Key Service Characteristics-Technical Benefits-Business Benefits.	
<b>UNIT II COMBINING SOA AND WEB SERVICES</b>	<b>No. of Periods 9</b>
Web services – Service descriptions – Messaging with SOAP –Message exchange Patterns Web Service Platform-Service Contract-Service Level Data Model-Service Discovery-Service Level Security-Service Level Interaction Patterns-Atomic and Composite Services-Service Enabling Legacy System-Enterprise Service Bus Pattern.	
<b>UNIT III MULTI CHANNEL ACCESS AND WEB SERVICES COMPOSITION</b>	<b>No. of Periods 9</b>
SOA for Multi-Channel Access-Business Benefits-Tiers-Business Process Management-Web Service Composition-BPEL-RESTFUL Services-comparison of BPEL and RESTFUL Services	
<b>UNIT IV JAVA WEB SERVICES</b>	<b>No. of Periods 9</b>
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-SOA support in .NET – ASP.NET web services – Case Studies- Web Services Enhancements (WSE)	
<b>UNIT V WEB SERVICES SECURITY AND TRANSACTION</b>	<b>No. of Periods 9</b>
Meta Data Management-Advanced Messaging- Addressing – Reliable Messaging – Policies WS-Policy– Security- WS-Security–Notification and Eventing-Transaction Management	

**TOTAL HOURS: 45**

**Objective:**

- ❖ To gain understanding of the basic principles of service orientation.
- ❖ Service oriented analysis techniques, technology underlying the service design.
- ❖ To gain advanced concepts such as service composition.
- ❖ Orchestration and Choreography, and various WS-\* specification standards

**Text Book:**

1. Eric Newcomer, Lomow, "Understanding SOA with Web Services", Pearson Education, 2005.
2. James McGovern, Sameer Tyagi, Michael E Stevens, Sunil Mathew, "Java Web Services Architecture", Elsevier, 2003.

**Reference Book:**

1. Thomas Erl, "Service Oriented Architecture", Pearson Education, 2005
2. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services, An Architect's Guide", Pearson Education, 2005.
3. Dan Woods and Thomas Mattern, "Enterprise SOA Designing IT for Business Innovation" O'REILLY, First Edition, 2006.
4. Frank Cohen, "FastSOA", Elsevier, 2007.
5. Jeff Davies, "The Definitive Guide to SOA", Apress, 2007

**Website:**

1. <https://www.tutorialspoint.com/soa/index.html>



	Pattern					18
<b>Outcome of Unit II:</b>						
<ul style="list-style-type: none"> <li>To Understand service orientation, benefits of SOA.</li> </ul>						
<b>UNIT-III MULTI CHANNEL ACCESS AND WEB SERVICES COMPOSITION</b>						
17	SOA for Multi-Channel Access	T1	26	BB	1	19
18	Business Benefits	T1	93	BB	1	20
19	Tiers	T1	206	BB	1	21
20	Business Process Management	T1	221	BB	1	22
21	Web Service Composition	T1	248	BB	1	23
22	BPEL	T1	248	BB	2	25
23	RESTFUL Services	T1	252	PPT, VIDEO	1	26
24	Comparison of BPEL and RESTFUL Services	W3	256	BB	1	27
<b>Outcome of Unit III:</b>						
<ul style="list-style-type: none"> <li>To Understand web services and WS standards</li> </ul>						
<b>UNIT-IV JAVA WEB SERVICES</b>						
25	SOA support in J2EE	T2	265	BB	1	28
26	Java API for XML-based web Services(JAX-WS)	T2	278	BB	1	29
27	Java Architecture for XML binding (JAXB)	T2	550	BB	1	30
28	Java API for XML Registries(JAXR)	T2	314	BB &VIDEO	1	31
29	Java API for XML based RPC (JAX-RPC)	T2	336	BB	1	32
30	Web Services Interoperability	T2	393	BB	1	33
31	SOA support in .NET	R2	Online	BB	1	34
32	ASP.NET web services	T2	Online	BB	1	35
33	Case Studies- Web Services Enhancements (WSE)	T2		PPT, NPTEL VIDEO	1	36

**Outcome of Unit IV:**

- Use web services extensions to develop solutions

**UNIT V WEB SERVICES SECURITY AND TRANSACTION**

<b>34</b>	Meta Data Management-	T2	273	BB	1	37
<b>35</b>	Advanced Messaging-	T2	349	PPT	1	38
<b>36</b>	Addressing	T2	391	BB	1	39
<b>37</b>	Reliable Messaging	T2	349	BB	1	40
<b>38</b>	Policies WS	W4	332	BB	1	41
<b>39</b>	Policy, Security- WS- Security-	W5	332	BB	1	42
<b>40</b>	Notification and Eventing	R1	378	BB	2	44
<b>41</b>	Transaction Management	R3	401	BB, VIDEO	1	45

**Outcome of Unit V:**

- To Understand Transaction Management Techniques.

**Course Outcome:**

At the end of course:

Students should be able to do:

**CO1:** Understand XML technologies.

**CO 2:** Understand service orientation, benefits of SOA.

**CO 3:** Understand web services and WS standards

**CO 4:** Use web services extensions to develop solutions

**CO 5:** Understand web services security

**CO 6:** Understand Transaction Management Techniques.

**Course Outcome Vs Program Outcome Mapping:**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO 1	2	1	-	-	-	-	-	-	-	-	-	-
CO 2	2	1	-	-	-	-	-	-	-	-	-	-
CO 3	3	2	1	1	-	-	-	-	-	-	-	-
CO 4	2	1	-	-	-	-	-	-	-	-	-	-
CO 5	3	2	1	1	-	-	-	-	-	-	-	-

CO 6	3	2	1	1	-	-	-	-	-	-	-
Avg	2.5	1.5	1	1	-	-	-	-	-	-	-

**Content beyond Syllabus:**

❖ Various XML Techniques and Services.

**Assignment 1:**

Webportal	Assignment	Components	Topic Number with Topic / Unit Details	Relevance to CO
<b>Webportal 1</b>	--	Assessment – I (60)	Unit I and II	CO 1 & CO2
	1	Assignment Handwritten (20)	Unit I 3.Service Oriented Enterprise-Comparing SOA to client 7. Technical Benefits-Business Benefits.	CO 1
	2	Poster / PPT Presentation (20)	Unit – II 12.Service Contract, Service Level Data Model 15. Atomic and Composite Services-Service Enabling Legacy System	CO2
<b>Webportal 2</b>	--	Assessment – II (60)	Unit III and IV	CO3 & CO4
	3	Seminar (20)	Unit – III 19. BPEL 20.RESTFUL Services	CO3
	4	Case Study Report/ Mini Project/Model Making (20)	Unit – IV 28. Java API for XML 32. Registries (JAXR) ASP.NET web services	CO4
<b>Webportal 3</b>	--	Model Exam (75)	Unit I to V	CO1 to CO6
	5	MCQ (15)	Unit I to V	CO1 to CO6
	--	Course Attendance	--	--

Webportal	Assignment	Components	Topic Number with Topic / Unit Details	Relevance to CO
		(10)		

**Submission Details:**

Phase 1(Before AT 1)		Phase 2 (Before AT 2)		Phase 3(Before MODEL EXAM)	
Assignment 1	SIM 1	Assignment 2	SIM 2	Assignment 3	SIM 3

**Google Class Code Details:**

**Class Name:**

**PLAN OF ASSESSMENT TEST –DISTRIBUTION OF MARKS:**

TEST	CO- MARK WISE DISTRIBUTION						BLOOM'S LEVEL MARK WISE DISTRIBUTION					
	CO1	CO2	CO3	CO4	CO5	CO6	BTL1	BTL2	BTL3	BTL4	BTL5	BTL6
AT-1	37	23	--	--	--	--						
AT-2	--	--	37	23	--	--						
MODEL	20	20	20	20	10	10						

**Prepared By**

**Verified By**

**HOD/IT**

**Approved By**

**PRINCIPAL**