# 20CS41J1 - SERVICE ORIENTED ARCHITECTURE

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| Course Category: | Job Oriented Elective | Credits: | 3 |
| Course Type: | Theory | Lecture-Tutorial-Practical: | 3-0-0 |
| Prerequisite: | Need to have a basic knowledge in service oriented architecture and its models. | Sessional Evaluation:  Univ. Exam Evaluation:  Total Marks: | 40  60  100 |
| Objectives: | * Enable data to flow between applications in real-time * Move processes online for self-service functionality * Increase overall development efficiency * Multiply the benefits of individual projects * Enables real-time integration, faster integration of new systems and reduces spread of data. * Enables exposure of functionality in portals and distributed development of mobile apps. | | |

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| Course Outcomes | Upon successful completion of the course, the students will be able to: | |
| CO1 | Able to understand service oriented architecture concepts. |
| CO2 | To understand fundamentals of web services and its internal working models. |
| CO3 | Gives insight overview on web services extensions and manifestation of various web activities. |
| CO4 | To learn service orientation and its principles associated with SOA. |
| CO5 | Able to learn several SOA layers with its internal functionality. |
| CO6 | Briefs SOA delivery strategies and real time case studies. |
| Course Content | UNIT-I  **Introduction to SOA**: Fundamental SOA, Characteristics of SOA, Benefits of SOA, pitfalls in SOA, Evolution of SOA  UNIT-II  **Web Services Fundamentals**: Web service framework, Service roles and models, Service descriptions (WSDL), Messaging with SOAP.  UNIT-III  **SOA and WS-\* Extensions**: What is “WS-\*”, Message Exchange Patterns, Service activity, Coordination, Atomic transactions, Business activities, Orchestration, Choreography.  UNIT-IV  **SOA and Service Orientation**: Service orientation and the enterprise, Anatomy of SOA, Principles of service orientation, Service orientation and Object orientation, Naïve web services.  UNIT-V  **Service Layers:** Service Orientation and Contemporary SOA, Service Layer Abstraction, Application, Business and Orchestration Service Layer, Agnostic Services, Configuration Scenarios.  UNIT-VI  **SOA delivery strategies**: lifecycle phases, top down strategy, bottom up strategy, agile strategy.  **Case Studies**: Rail Co Ltd, Transit line systems Inc, The OASIS car wash. | |
| Text Books &  Reference  Books | **TEXT BOOKS:**   1. Service Oriented Architecture Concepts, Technology and Design by Thomas Erl 2006 Pearson Education.   **REFERENCE BOOKS:**   1. Understanding SOA with Web Services by Eric newcomer, Greg Lomow, 2007 Pearson Education. 2. Service – Oriented Architecture for Enterprise Applications by Shankar Kambhampaly, Wiley. | |
| E-Resources | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |