# 17IT4101 - SERVICE ORIENTED ARCHITECTURE

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| **Course Category:** | Program Core | **Credits:** | 4 |
| **Course Type:** | Theory | **Lecture - Tutorial - Practical:** | 3-2-0 |
| **Prerequisite:** | Require fundamental knowledge in software engineering and computer networks | **Sessional Evaluation:**  **Univ. Exam Evaluation:**  **Total Marks:** | 40  60  100 |
| **Objectives** | * Gain a foundational understanding of several issues in the business adoption of SOA in an IT context | | |

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| **Course Outcomes** | Upon successful completion of the course, the students will be able to: | |
| CO1 | Understand the fundamental types of software architectures |
| CO2 | Learn some SOA patterns and programming models |
| CO3 | Acquire knowledge of SOA technologies |
| CO4 | Study various trends in SOA |
| CO5 | Understand security in web services |
| CO6 | Get the clear view of transaction processing in SOA |
| **Course Content** | UNIT-I  **Software Architecture:** Types of IT Architecture, SOA, Evolution, Key Components, Perspective of SOA, Enterprise-wide SOA, Architecture, Enterprise Applications, Solution Architecture for Enterprise Application.  UNIT-II  **Software Platforms for Enterprise Applications:** Patterns for SOA, SOA Programming Models. Service-Oriented Analysis and Design, Design of Activity, Data, Client and Business Process Services  UNIT-III  **Technologies of SOA:** SOAP, WSDL, JAX, WS, XML WS for .NET, Service Integration with ESB, Scenario, Business Case for SOA, Stakeholder Objectives, Benefits of SOA, Cost Savings.  UNIT-IV  **SOA Implementation and Governance:** Strategy, SOA Development, SOA Governance, Trends in SOA, Event-Driven Architecture, Software as Service, SOA Technologies, Proof-of-Concept, Process Orchestration, SOA Best Practices  UNIT-V  **Meta Data Management:** XML Security, XML Signature, XML Encryption, SAML, XACML, XKMS, WS-Security, Security in Web Service Framework - Advanced Messaging.  UNIT–VI  **Transaction Processing:** Paradigm, Protocols and Coordination, Transaction Specifications, SOA in Mobile, Research Issues. | |
| **Text Books and References:** | Text Books:   1. Understanding SOA with Web Services by Eric Newcomer, Greg Lomow, Pearson Education. | |
| Reference Books:   1. Service Oriented Architecture for Enterprise Applications by Shankar Kambhampaty, Wiley India Pvt Ltd, 2008. 2. Web Services Security by Mark O’ Neill, et al., Tata McGraw-Hill Edition, 2003 | |
| **E-Resources** | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |