

**UNIT 6****7 Hours**

**Caches** : The memory hierarchy and the cache memory; Cache architecture; Cache policy; Coprocessor 15 and cache; Flushing and cleaning cache memory; Cache lockdown; Caches and software performance.

**UNIT 7****6 Hours**

**Memory – 1:** Memory Protection Units: Protected regions; Initializing the MPU, cache and write buffer; Demonstration of an MPU system. Memory Management Units: Moving from MPU to an MMU; How virtual memory works; Details of the ARM MMU.

**UNIT 8****6 Hours**

**Memory – 2:** Page tables; The translation lookaside buffer; Domains and memory access permission; The caches and write buffer; Coprocessor 15 and MMU configuration; The fast context switch extension.

**Text Books:**

1. Andrew N. Sloss, Dominic Symes, Chris Wright: ARM System Developer's Guide – Designing and Optimizing System Software, Elsevier, 2004.

**Reference Books:**

1. David Seal (Editor): ARM Architecture Reference Manual, 2<sup>nd</sup> Edition, Addison-Wesley, 2001.
2. Steve Furber: ARM System-on-Chip Architecture, 2<sup>nd</sup> Edition, Addison-Wesley, 2000.


**SERVICES ORIENTED ARCHITECTURE**

**Subject Code:** 10CS844  
**Hours/Week:** 4  
**Total Hours:** 52

**I.A. Marks:** 25  
**Exam Marks:** 100  
**Exam Hours:** 3

**PART – A****UNIT 1****7 Hours**

**Introduction o SOA, Evolution of SOA:** Fundamental SOA; Common Characteristics of contemporary SOA; Common tangible benefits of SOA; An SOA timeline (from XML to Web services to SOA); The continuing evolution of SOA (Standards organizations and Contributing vendors); The roots of SOA (comparing SOA to Past architectures).

  
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**UNIT 2****6 Hours**

**Web Services and Primitive SOA :** The Web services framework; Services (as Web services); Service descriptions (with WSDL); Messaging (with SOAP).

**UNIT 3****6 Hours**

**Web Services and Contemporary SOA – 1:** Message exchange patterns; Service activity; Coordination; Atomic Transactions; Business activities; Orchestration; Choreography

**UNIT 4****7 Hours**

**Web Services and Contemporary SOA – 2:** Addressing; Reliable messaging; Correlation; Policies; Metadata exchange; Security; Notification and eventing

**PART – B****UNIT 5****7 Hours**

**Principles of Service – Orientation:** Services-orientation and the enterprise; Anatomy of a service-oriented architecture; Common Principles of Service-orientation; How service orientation principles inter-relate; Service-orientation and object-orientation; Native Web service support for service-orientation principles.

**UNIT 6****6 Hours**

**Service Layers:** Service-orientation and contemporary SOA; Service layer abstraction; Application service layer, Business service layer, Orchestration service layer; Agnostic services; Service layer configuration scenarios

**UNIT 7****7 Hours**

**Business Process Design:** WS-BPEL language basics; WS-Coordination overview; Service-oriented business process design; WS-addressing language basics; WS-Reliable Messaging language basics

**UNIT 8****6 Hours**

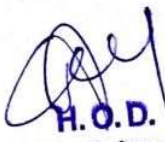
**SOA Platforms:** SOA platform basics; SOA support in J2EE; SOA support in .NET; Integration considerations

**Text Books:**

1. Thomas Erl: Service-Oriented Architecture – Concepts, Technology, and Design, Pearson Education, 2005.

**Reference Books:**

1. Eric Newcomer, Greg Lomow: Understanding SOA with Web Services, Pearson Education, 2005.

  
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