SARDAR RAJA COLLEGE OF ENGINEERING, ALANGULAM

DEPARTMENT OF COMPUTER APPLICATIONS

MICRO LESSON PLAN

SUBJECT NAME	**:**	**MIDDLEWARE TECHNOLOGIES**
SUBJECT CODE	**:**	**MC 9251**
DEPT	**:**	**MCA**
YEAR/SEM	**:**	**III/V**

Handled by

Mrs.P.UMA

Asst.Prof / MCA

MC 9251 MIDDLEWARE TECHNOLOGIES **L T P C 3 0 0 3**

UNIT I INTRODUCTION **7**

Emergence of Middleware – Objects, Web Services – Middleware Elements – Vendor Architecture – Interoperability – Middleware in Distributed Applications – Types of Middleware – Transaction-Oriented Middleware – MOM – RPC.

UNIT II OBJECT ORIENTED MIDDLEWARE **12**

OOM – Developing with OOM – Heterogeneity – Dynamic Object Request – Java RMI – COM+.

UNIT III COMPONENT OBJECT RESOURCE BROKER ARCHITECTURE (CORBA) **12**

Naming - Trading - Life Cycle - Persistence - Security - CORBA.

UNIT IV WEB SERVICES **7**

Introduction – XML Web Services Standards – Creating Web Services – Extending Web Services – Messaging Protocol – Describing – Discovering – Securing.

UNIT V OTHER TYPES OF MIDDLEWARE **7**

Real-Time Middleware – RT CORBA – Multimedia Middleware – Reflective Middleware–Agent-Based Middleware – RFID Middleware.

Total = 45 Hours

TEXT BOOKS

1. Chris Britton and Peter Eye, "IT Architecture and Middleware", Pearson Education, 2nd Edition, 2004.
2. Wolfgang Emmerich, "Engineering Distributed Objects", John Wiley, 2000.
3. Keith Ballinger, ".NET Web Services – Architecture and Implementation", Pearson Education, 2003. (Unit IV).

REFERENCES

1. Qusay H. Mahmoud, "Middleware for Communications", John Wiley and Sons, 2004.
2. Gerald Brose, Andreas Vogel, Keith Duddy, "JavaTM Programming with CORBATM: Advanced Techniques for Building Distributed Applications", Wiley, 3rd edition, January, 2004.
3. Michah Lerner, "Middleware Networks: Concept, Design and Deployment of Internet Infrastructure", Kluwer Academic Publishers, 2000.

MC 9251 MIDDLEWARE TECHNOLOGIES

COURSE DESCRIPTION:

- Class Focus Areas, Motivation and Objectives; Introducing Wired/Wireless Networking Fundamentals and Backbones that Middleware, SOA Technologies based upon
- Server-Based Middleware, SOA Frameworks: Java, CORBA, IDL, Naming Service, Event Service (Notification Service), IIOP, RMI, RMI-IIOP, etc, Technologies and Application Approaches including possible QoS.
- Web/Server-Based Middleware, SOA Frameworks:JSP Pages, XML, Servlets, EJB & Java Persistence, JAX-WS, JMS, JDBC (Java EE), WSDL, UDDI, SOAP, SIP, Web Services, .NET, Technologies and Application Approaches including possible QoS.
- Wireless Networks Integration via Java ME (KVM, CLDC, MIDP, MIDlet), etc.
- Interoperable Applications using the Heterogeneous, Hybrid Integrated, Distributed, Server-Web Frameworks, e.g., Hospital Information Systems

COURSE OBJECTIVIES:

- Overview of Middleware and RPC.
- Overview of OOM,Java RMI,COM+.
- To Discuss the Concept of CORBA.
- Explain the Other Types of Middleware.

MICRO LESSON PLAN

Hours	Lecture Topics	Text Books
	UNIT I - INTRODUCTION	
1	Emergence of Middleware, Objects, Web Services	
2	Middleware Elements	
3	Vendor Architecture , Interoperability	**T1**
4	Middleware in Distributed Applications	
5	Types of Middleware	
6	Transaction-Oriented Middleware	
7	MOM , RPC	
	UNIT II - OBJECT ORIENTED MIDDLEWARE	
8	OOM	
9	OOM	
10	Developing with OOM	
11	Developing with OOM	
12	Heterogeneity	**T2**
13	Heterogeneity	
14	Dynamic Object Request	
15	Dynamic Object Request	
16	Java RMI	
17	Java RMI	
18	COM+	
19	COM+	
	UNIT III - COMPONENT OBJECT RESOURCE BROKER ARCHITECTURE (CORBA)	
20	Naming	
21	Naming	**T2**
22	Trading	
23	Trading	
24	Life Cycle	

25	Life Cycle	
26	Persistence	
27	Persistence	
28	Security	
29	Security	
30	CORBA	
31	CORBA	
	UNIT IV - WEB SERVICES	
32	Introduction ,XML Web Services standards	
33	Creating Web Services	
34	Extending Web Services	
35	Messaging Protocol	**T3**
36	Describing	
37	Discovering	
38	Securing	
	UNIT V - OTHER TYPES OF MIDDLEWARE	
39	Real-Time Middleware	
40	RT CORBA	
41	RT CORBA	
42	Multimedia Middleware	
43	Reflective Middleware	
44	Agent-Based Middleware	**T3**
45	RFID Middleware	

Reg. No. : | | | | | | | | | | | |

LL 1554

M.C.A. DEGREE EXAMINATION, AUGUST 2009.

Fourth Semester

DMC 1754 — MIDDLE-WARE TECHNOLOGIES

(Regulation 2007)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Justify the need for middleware technologies.
2. What is a peer-to-peer system?
3. What is EJB? Explain its objectives.
4. Differentiate session bean and entity bean.
5. List the different types of archive files used in web applications and state its reasons.
6. Describe the life cycle of an entity bean.
7. Explain the uses of IDL.
8. Explain the role of object adapters in CORBA.
9. Explain the features of proxy and stub in COM.
10. Compare any two features of COM and CORBA.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare two-tier and three-tier architectures. (8)

(ii) List the different types of server categories and highlight their features. (8)

Or

(b) (i) Highlight the features of distributed object. (10)

(ii) Compare RPC with messaging based systems. (6)

12. (a) (i) Explain the architecture of EJB. (8)

(ii) List the different types of roles played by people in EJB and explain their functionalities. (8)

Or

(b) Summarize the various technologies associated with JZEE framework and highlight their features. (16)

13. (a) (i) List the different objects of EJB and explain their communication mechanism. (8)

(ii) What are the steps involved in the process of developing a stateless session bean? Write an example bean to find the average of 'N' numbers. (8)

Or

(b) (i) Highlight the features of an entity bean. (8)

(ii) Explain the steps in the creation of bean-managed persistent entity bean and EJB object. (8)

14. (a) (i) Explain the architecture of CORBA. (10)

(ii) Explain the role of IIOP in CORBA. (6)

Or

(b) (i) What are the steps required to build an application with CORBA standard? Explain with an example. (10)

(ii) What is IDL to Java mapping? Explain. (6)

15. (a) (i) Explain the process of creating a component using COM. (10)

(ii) Define marshalling and unmarshalling. (6)

Or

(b) (i) Highlight the features of .NET framework. (8)

(ii) Explain remoting architecture. (8)
