



**B. TECH.
IN
COMPUTER SCIENCE AND BUSINESS SYSTEMS**

**SEMESTER VIII
(2021 ADMISSIONS)**

SYLLABUS

Rajagiri Valley, Kakkanad,
Kochi 682 039, Kerala, INDIA
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COURSE CODE	COURSE NAME	L	T	P	CREDIT	YEAR OF INTRODUCTION
101009/IT802S	ENTERPRISE SYSTEMS LAB	0	0	2	1	2021

1. Preamble

The Enterprise Systems Architecture and Development Lab course is designed to give students practical experience in analyzing, modifying, and deploying elements of an enterprise system. Students will gain exposure to modern architectural styles and deployment strategies while working with open-source applications. The course emphasizes a hands-on approach to system architecture, development, and deployment.

2. Prerequisite

Nil

3. Syllabus

1. Open-Source Application Exploration

Identify an open-source application (e.g., ERP Next, Odoo, OpenMRS) and study its architecture, components, and development practices.

2. Architecture Analysis and Case Studies

Study the architecture of selected applications using architectural patterns such as monolithic, microservices, client-server, or SOA - Analyze architecture-related case studies.

3. Component Development/Modification

Modify or develop components of the application, focusing on the implementation of business logic, workflows, and services.

4. Integration and Deployment

Study and implement deployment strategies such as Docker, Kubernetes, and CI/CD pipelines - Set up continuous integration and continuous deployment (CI/CD) pipelines for the open-source application.

5. Security and Stability

Understand the importance of stability, security, and performance in enterprise systems - Implement security measures such as authentication and authorization within the application.

6. Scaling Enterprise Applications

Implement scaling techniques, both horizontal and vertical, using cloud-based infrastructure (AWS, Azure, etc.).

List of Experiments

1. Setting Up an Open-Source ERP System and Install and configure an open-source ERP system (e.g., ERPNext or Odoo)
2. Developing a Simple Business Information System (BIS) using an open-source framework.
3. Implementing Decision Support Features, Integrate decision support features into an existing application.
4. B2B vs. B2C Model Analysis, Explore and compare B2B and B2C functionalities in an ecommerce platform.
5. Integrating Systems Using APIs, integrate two open-source applications using REST APIs.
6. Cloud Deployment and Configuration, Deploy an enterprise application to a cloud platform.
7. CI/CD Pipeline Implementation, Set up a CI/CD pipeline for an enterprise application.
8. Exploring Enterprise Integration Patterns, Implement an enterprise integration pattern in an application.
9. Enterprise Architecture Modeling, model an enterprise architecture using the Zachman or TOGAF framework.

4. Textbooks

1. R. Stair and G. Reynolds, Principle of Information Systems, 10th Edition, Cengage Learning, 2012.
2. M. Fowler, Patterns of Enterprise Application Architecture, 1st Edition, Addison-Wesley, 2012.
3. G. Hohpe and B. Woolf, Enterprise Integration Patterns: Designing, Building, and Deploying Messaging Solutions, 1st Edition, Addison-Wesley, 9 March 2012.
5. M. Richards, Software Architecture Patterns, 2nd Edition, O'Reilly Media, August 2022.
6. S. Newman, Building Microservices: Designing Fine-Grained Systems, 1st Edition, O'Reilly Media, 20 February 2015.

5. Course Outcomes

After the completion of the course the student will be able to

CO1: Analyze the architecture of an open-source enterprise system.

CO2: Modify and develop enterprise system components.

CO3: Implement and deploy the system using modern techniques like Docker and Kubernetes.

CO4: Ensure the security, stability, and scalability of enterprise applications.

CO5: Integrate the enterprise system with other software systems or services.

6. Mapping of Course Outcomes with Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3		2								
CO2	3		3		2							
CO3			2		3		2			1		
CO4		3	3			2						
CO5	3		3									

7. Mark Distribution

Total Marks	Continuous Internal Evaluation (CIE)	End Semester Examination (ESE)	ESE duration
150	75	75	2.5 Hours

8. Continuous Internal Evaluation Pattern

Attendance : 15 Marks
 Continuous Assessment : 30 Marks
 Internal Test (Immediately before the second series test): 30marks

9. End Semester Examination Pattern

The following guidelines should be followed regarding award of marks

1. a. Design : 10 Marks
 b. Implementation of Project : 15 Marks
2. Performance, result and inference
 (usage of application tool and troubleshooting) : 25 Marks
3. Viva Voice : 20 Marks
4. Record : 5 Marks

General instructions: Practical examination to be conducted immediately after the second series test covering the entire syllabus given below. Evaluation is a serious process that

is to be conducted under the equal responsibility of both the internal and external examiners. The number of candidates evaluated per day should not exceed 20. Students shall be allowed for the University examination only on submitting the duly certified record. The external examiner shall endorse the record.
