COURSE FILE

Faculty Details

Name of the Faculty	ASIR ANTONY GNANA SINGH D
Designation	TEACHING FELLOW
Department	IT

Course Details

Name of the Programme	B. Tech IT	Batch	2015-2019
Semester & Year	VI & III	No. of Students	49
Subject Code & Name	CS6601-DISTRIBUTED SYSTEMS		

Signature of the Faculty   Signature of the Head of the Department

Date: Date:

PROGRAMME EDUCATIONAL OBJECTIVES (PEO's)

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PEO-1   Provide proficiency in technical knowledge to responsibly and critically analyze to solve the technological problems

PEO-2   Motivate research and development activities to develop novel products and provide sustainable solutions to meet the societal needs

PEO-3 Provide high professionalism to work in diverse and innovative environments with Modern tools.

PEO-4 Develop ethical attitude, provide communication and managerial skills, and induce the ability for life-long learning

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PROGRAMME OUTCOMES

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PROGRAMME OUTCOMES (PO's)

1. Apply Engineering knowledge to solve problems in different areas of Information Technology.
2. Identify, hypothesize and construct software Requirement Specification using various concepts and techniques in the field of IT.
3. Design and develop solutions for complex systems to meet the needs of society and IT industry.
4. Ability to conduct research in diversified field of Mobile Communication, Web technology, Data Mining, Cryptography, Network Security etc to obtain valid conclusions for challenging problems.
5. Develop programming skills to use sophisticated and advanced software tools of IT.
6. Develop ability to perform best engineering and technical practices that benefit the corporate society and industry.
7. Develop projects using software tools for satisfying the needs of end users.
8. Learn and follow the ethical principles involved in IT research and industrial practices.
9. Ability to work as an individual based on interest and also in multidisciplinary team of Information Technology.
10. Develop effective communication and technical writing in IT research and industrial practices.
11. Develop management skills to work in IT industry and also to become an entrepreneur in the field of Information Technology.

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12. Engage in lifelong learning process by updating the knowledge of individual with the upcoming software tools and techniques.

SYLLABUS

UNIT I INTRODUCTION 7

Introduction – Examples of Distributed Systems–Trends in Distributed Systems – Focus on resource sharing – Challenges. Case study: World Wide Web.

UNIT II COMMUNICATION IN DISTRIBUTED SYSTEM 10

System Model – Inter process Communication - the API for internet protocols – External data representation and Multicast communication. Network virtualization: Overlay networks. Case study: MPI Remote Method Invocation And Objects: Remote Invocation – Introduction - Request-reply protocols - Remote procedure call - Remote method invocation. Case study: Java RMI – Group communication - Publish-subscribe systems - Message queues - Shared memory approaches - Distributed objects - Case study: Enterprise Java Beans -from objects to components

UNIT III PEER TO PEER SERVICES AND FILE SYSTEM 10

Peer-to-peer Systems – Introduction - Napster and its legacy - Peer-to-peer – Middleware – Routing overlays. Overlay case studies: Pastry, Tapestry- Distributed File Systems –Introduction – File service architecture – Andrew File system. File System: Features-File model -File accessing models - File sharing semantics Naming: Identifiers, Addresses, Name Resolution – Name Space Implementation – Name Caches – LDAP.

UNIT IV SYNCHRONIZATION AND REPLICATION 9

Introduction - Clocks, events and process states - Synchronizing physical clocks- Logical time and logical clocks - Global states – Coordination and Agreement – Introduction - Distributed mutual exclusion – Elections – Transactions and Concurrency Control– Transactions -Nested transactions – Locks – Optimistic concurrency control - Timestamp ordering – Atomic Commit protocols –Distributed deadlocks – Replication – Case study – Coda.

UNIT V PROCESS & RESOURCE MANAGEMENT 9

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Process Management: Process Migration: Features, Mechanism - Threads: Models, Issues, Implementation. Resource Management: Introduction- Features of Scheduling Algorithms –Task Assignment Approach – Load Balancing Approach – Load Sharing Approach.

COURSE OBJECTIVES & OUTCOMES

COURSE OBJECTIVES

The student should be made to:
- Understand foundations of Distributed Systems
- Introduce the idea of peer to peer services and file system
- Understand in detail the system level and support required for distributed system
- Understand the issues involved in studying process and resource management

COURSE OUTCOMES

At the end of the course, the student should be able to:

- Discuss trends in Distributed Systems.
- Apply network virtualization.
- Apply remote method invocation and objects.
- Design process and resource management systems..

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Mapping CO-PO

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Mapping CO – PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	B	C		B			B	C				
CO2	A	B		B			B					
CO3	A	C	B	C	C			C				
CO4	A	B	C	C			C					

A – Excellent ; B – Good ; C - Average

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METHOD OF EVALUATION AND INNOVATION

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1. METHOD OF EVALUATION

1.1	Continuous Assessment Examinations (CAE 1, CAE 2, CAE 3)
1.2	Assignments / Seminars
1.3	Discussions on various techniques
1.4	Term End Examination
1.5	Others

2. List out any new topic(s) you would like to introduce in teaching the subject in this semester.

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ANNA UNIVERSITY
BHARATHIDASAN INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI – 620 024.

DEPARTMENT OF INFORMATION TECHNOLOGY

Year: Dec'17 – April'18

Semester: EVEN

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INSTRUCTIONAL OBJECTIVES:

1. **Teaching Aids: BB/LCD**

2. **Assignments / Questions**

- Comment on trends in Distributed Systems.

- Java RMI – Group communication

- Comment on optimistic concurrency control

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COURSE COMPLETION STATUS

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Actual Date of Completion & Remarks, if any

Units	Remarks
Unit 1	
Unit 2	
Unit 3	
Unit 4	
Unit 5	

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