CPIS-464 Syllabus

Catalog Description

CPIS-464 Distributed Systems
Credit: 3 (Theory: 3, Lab: 2, Practical: 0)
Prerequisite: CPIS-370
Classification: Elective

The objective of this course is to explore the concepts and theories of distributed systems. Topics include the characteristics and specifications of distributed systems, how to make use of them to serve operations and the organization in general, and the technical challenges faced to design, develop, and protect distributed systems.

Class Schedule

Lab/Tutorial 90 minutes 1 times/week

Meet 50 minutes 3 times/week or 80 minutes 2 times/week

Textbook

Andrew S. Tanenbaum, Maarten van Steen, , "Distributed Systems" 2 edition (2013-07-26)

ISBN-13 9781292025520   **ISBN-10** 1292025522

Grade Distribution

Week	Assessment	Grade %
6	Exam 1	20
10	Exam 2	20
15	Group Project	15
15	Graded Lab Work	10
16	Exam	35

Topics Coverage Durations

Topics	Weeks
Characteristics and specifications of distributed systems.	1
Distributed Systems Models.	1
Security in distributed systems.	2
Distributed File Systems	2
Domain Name Services	2
Transactions and Concurrency Control	2
Distributed Transactions and concurrency control	1
Distributed and Parallel Computing	1
Grid Computing	1
Cloud Computing	1

Last Articulated

April 17, 2018

Relationship to Student Outcomes

a	b	c	d	e	f	g	h	i	j
	x	x						x	

Course Learning Outcomes (CLO)

By completion of the course the students should be able to

1. Describe fundamentals, types and characteristics of distributed systems (b)
2. Assess and compare distributed sytem models and architectures (b)
3. Describe basic security concepts in distributed systems and appraise cyptographic techniques for different security threats (c)
4. Utilize cryptographic keys for general security, authentication and integrity of messages (c)
5. Explain distributed file systems its various architectures and related issues (b)
6. Appraise state of the art distributed file systems (i)
7. Describe naming problem in distributed system and corresponding available solutions (c)
8. Compare different naming techniques in distributed systems (c)
9. Use different concurrency tools to control concucurrency in distributed transactions (i)
10. **Assess distributed transactions and illustrate commit protocols using locking and synchronization (c)**
11. **Explain distributed deadlock,and appraise different methods for deadlock detection and resolution (i)**
12. **Use distributed and parallel computing and will executed parallel programs in a cluster environment (i)**
13. **Explain the scenerio of Grid computing and utilize it for distributed and parallel computing (i)**
14. **Appraise the case of Cloud computing and its utilization in different cases (b)**

Coordinator(s)

Prof. Farrukh Nadeem, Professor