



Course Specifications

Course Title:	Distributed Systems
Course Code:	501554-3
Program:	Bachelor in Computer Science
Department:	Department of Computer Science
College:	College of Computers and Information Technology
Institution:	Taif University

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A. Course Identification

1. Credit hours: 3
2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 13/5
4. Pre-requisites for this course (if any): 501453-3
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	50	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	50
2	Laboratory/Studio	
3	Tutorial	
4	Others (specify)	
	Total	50

B. Course Objectives and Learning Outcomes

<p>1. Course Description</p> <p>This course introduces the concepts and motivations of distributed systems, types of distributed systems, distributed system architectures, concept of process, communications and synchronization, distributed concurrency control, and distributed algorithms.</p>
<p>2. Course Main Objective</p> <ul style="list-style-type: none"> • Define the fundamental concepts and goals of distributed systems. • Describe the different types of distributed systems and different architectures. • Define process concept, synchronization and communication. • Understand the concept of distributed concurrency control and distributed algorithms.



3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Define the basic concepts and goals of distributed systems.	K1
1.2	Describe the different types of distributed systems and different architectures.	K1
1.3	Define process concept, synchronization and communication.	K1
1...	Understand the concept of distributed concurrency control and distributed algorithms.	K1
2	Skills :	
3	Values:	

C. Course Content

No	List of Topics	Contact Hours
1	Course overview, Policies, Basic concepts of distributed computing systems, Distribution Transparency, Openness, Scalability	4
2	Goals, characteristics and design issues of distributed systems	3
3	Types of distributed systems (Distributed Computing Systems, Information Systems, Pervasive Systems, Cloud)	7
4	Distributed systems architectures (SYSTEM ARCHITECTURES, Software architectures)	7
	Process (THREADS, VIRTUALIZATION, SERVERS, CODE MIGRATION)	7
5	Communication and Synchronization (Types of Communication, REMOTE PROCEDURE CALL, MESSAGE-ORIENTED COMMUNICATION, STREAM-ORIENTED COMMUNICATION, CLOCK SYNCHRONIZATION, ELECTION ALGORITHM)	7
6	Distributed Concurrency control (CONSISTENCY MODELS, REPLICA MANAGEMENT, CONSISTENCY PROTOCOLS)	7
7	Distributed Algorithms	8
Total		50

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Define the basic concepts and goals of distributed systems.	Lectures	Direct Quizzes / Homework Exams Indirect Course Exit Survey



Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Describe the different types of distributed systems and different architectures.	Lectures	Direct Quizzes / Homework Exams Indirect Course Exit Survey
1.3	Define process concept, synchronization and communication.	Lectures	Direct Quizzes / Homework Exams Indirect Course Exit Survey
1.4	Understand the concept of distributed concurrency control and distributed algorithms.	Lectures	Direct Quizzes / Homework Exams Indirect Course Exit Survey
2.0	Skills		
3.0	Values		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Homeworks /Student Participation-Attendance	Every Week	20%
2	Quizzes	Weeks 2,6,8	15%
3	Mid-Term	Week 4	25%
5	Final Examination	Week 16	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- 6 hours per week in pre-determined office hours
- Consultation by appointment (as needed)
- Through emails
- Through BlackBoard Learn

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	<ul style="list-style-type: none"> • Distributed Systems: Principles and Paradigms • Andrew S.Tanenbaum, Maarten Van Steen
Essential References Materials	<ul style="list-style-type: none"> • Distributed Systems: Concepts and Design • Jean Dollimore, Tim Kindberg, George Coulouris



Electronic Materials	http://www.scs.stanford.edu/17au-cs244b/notes/ . Lecture notes.
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2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> Classroom with 30 chairs
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> Video projector / data show White board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students' surveys and Student's course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	<ul style="list-style-type: none"> Review CAF (Course assessment file) Alumni surveys. Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	CS council
Reference No.	Meeting #12
Date	23-10-1443

