Tunisian Republic
Private Higher School of Engineers of Gafsa
Private Higher Education Institution,
State-approved under N° 05-2013

Course Title:	**Distributed database**
Course Code:	CSE572/1
Program:	Master Degree In Computer Engineering
Department:	Computer Engineering
Course coordinator:	Mohamed Elfadhel SAAD
Institution:	Private Higher School of Engineers of Gafsa (ESIP)

A. Course Identification

1. Credit hours: 3 (1.5-0-0)

2. Course type
a. University ☐ College ☐ Department ■ Others ☐
b. Required ■ Elective ☐

3. Level/year at which this course is offered: 3.1/3

4. Pre-requisites for this course: CSE323, CSE431, Networks and protocols

1. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Self-study	Total workload
1	**Traditional classroom**	…..		
2	**Blended**	15		
3	**E-learning**	……	11	26
4	**Distance learning**	……		
5	**Other ()**	……		

2. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	7.5
2	**Laboratory/Studio**	-
3	**Tutorial**	7.5
4	**Others** (specify)	-
	Total	15

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B. Course Objectives and Learning Outcomes

Course Description

In this course we will focus on the essentials of the design of a distributed database and the fragmentation techniques in order to establish the allocation scheme of a distributed database. Introduce the main concepts of Distributed Query Processing and Optimization. Present the transaction concurrency problem, access concurrency and reprise.

Course Main Objective

- ✔ Know and introduce the main notions of distributed databases
- ✔ Understand the different database architectures
- ✔ Develop a Designing distributed database
- ✔ Identify the basic concepts of distributed Query Processing and Optimization
- ✔ Master the concept of transaction
- ✔ The skill to manage access concurrency and reprise
- ✔ Mange the design problems and ethics related to distributed database
- ✔ Conclude effectively the basics, principles, and theories related to distributed database with other disciplines

1. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Know and introduce the main notions of distributed databases	PLOK.2
3.1	Understand the different database architectures	PLOK.3
2	**Skills**	
1.1	Develop a Designing distributed database	PLOS.1
2.1	Identify the basic concepts of distributed Query Processing and Optimization	PLO.S2
3.1	Master the concept of transaction	PLO.S3
4.1	The skill to manage access concurrency and reprise	PLO.S4
6.1	Mange the design problems and ethics related to distributed database	PLO.S6
7.1	Conclude effectively the basics, principles, and theories related to distributed database with other disciplines	PLO.S7

C. Course Content

No	List of Topics	Contact Hours
1	Know and introduce the main notions of distributed databases	1.5
2	Designing a distributed database	1.5
3	Fragmentation Techniques	1.5
4	The basic concepts of distributed Query Processing and Optimization	1.5
5	Access concurrency and reprise	1.5
Total		7.5

D. Tutorial work Content

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No	List of Topics	Contact Hours
1	Tutorial 1: Distributed database design	3
2	Tutorial 2: Distributed Query Processing and Optimization	2
3	Tutorial 3: Access concurrency and reprise	2.5
Total		7.5

E. 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**		
PLOK.2	Know and introduce the main notions of distributed databases	Lecturing	Assignments, Quizzes , Exams,
PLOK.3	Understand the different database architectures	Lecturing	Assignments, Quizzes , Exams,
2.0	**Skills**		
PLOS.1	Develop a Designing distributed database	Lecturing Tutorial	Assignments, Quizzes , Exams,
PLOS.2	Identify the concepts of distributed Query Processing and Optimization	Lecturing Tutorial	Assignments, Quizzes , Exams,
PLOS.3	Master the concept of transaction	Lecturing Tutorial	Assignments, Quizzes , Exams,
PLOS.4	The skill to manage access concurrency and reprise	Lecturing Tutorial	Assignments, Quizzes , Exams,
PLOS.6	Mange the design problems and ethics related to distributed database	Lecturing Tutorial	Assignments, Quizzes , Exams,
PLOS.7	Conclude effectively the basics, principles, and theories related to distributed database with other disciplines	Lecturing Tutorial	Assignments, Quizzes , Exams,

2. Assessment Tasks for Students

	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Practical Work (written or oral)	Weekly	00%
2	Quizzes, Homework assignments	Random	00%
5	Final Exam	6	100%

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
  2- Office hours
  3- Blackboard interface

F. Learning Resources and Facilities

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1. Learning Resources

Required Textbooks	1. Özsu, M. Tamer, & Valduriez, Patrick – Principles of Distributed Database Systems, 4th Edition, Springer, 2020 2. Rim Moussa – Distributed Database Management Systems & Distribution Mechanisms with Oracle
Essential References Materials	- NA
Electronic Materials	1. PostgreSQL Documentation – Distributed database replication and sharding techniques (www.postgresql.org/docs) 2. MongoDB Distributed Systems Guide – Handling distributed NoSQL databases (www.mongodb.com)
Other Learning Materials	NA

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	**classroom board software …**
Technology Resources (AV, data show, Smart Board, software, etc.)	**data show;**

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment.	Students, course coordinator, Alumni, Employers	Direct/Indirect
Extent of achievement of course learning outcomes.	Faculty, Program Leaders, quality department	Direct
Quality of Learning resources	Faculty, Program Leaders,	Direct, Indirect
Teaching and learning quality and effectiveness.	Students, Faculty Program Leaders,	Direct, Indirect

H. Specification Approval Data

Council / Committee	Computer Engineering Council
Date	11/09/2023