Course Description Form

1. Course Name:

Cloud Computing Foundation

2. Course Code:

CSIS4214

3. Semester / Year:

Second Semester /2024/2025

4. Description Preparation Date:

1-2-2025

5. Available Attendance Forms:

weeklytheoretical attendance

6. Number of Credit Hours (Total) / Number of Units (Total)//

30 Hours / 2 Units

7. Course administrator's name (mention all, if more than one name)

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8. Course Objectives

Course Objectives	1- Explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, and the characteristics, advantages and challenges introduced by the various models and services in cloud computing. 2- apply the fundamental concepts in data centers to understand the tradeoffs in power, efficiency and cost. 3- discuss the virtualization technology and outline its role in enabling cloud computing. 4- illustrate the key concepts of cloud storage.

9. Teaching and Learning Strategies

Strategy	**A- Knowledge and Understanding** A1:Enable the student to know and understand the theoretical principles of cloud computing A2: Understand the economic and technological factors that led to the emergence of cloud computing. A3: Understand the key building blocks (eg, resource sharing, storage, programming models, and cloud services) that make up a cloud system. A4. Introduce the student to the requirements of the cloud computing

B- Subject-specific skills

B1:Determining the concept of cloud computing for students, its advantages and disadvantages.
B2: Attempting to benefit from cloud computing service applications in all areas of life, especially the educational process.
B3: take advantage of the benefits of cloud computing

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical	3,4,5,6,7	**Basics of Cloud Computing**	Presentation and writing board	Attendance + answering questions + discussion + homework
2	2 theoretical	3,4,5,6,7	**Cloud Services and Cloud Deployment** • Infrastructure as a Service (IAAS)	Presentation Andwriting board	Attendance + answering questions + discussion + homework
3	2 theoretical	3,4,5,6,7	• Platform as a Service (PAAS) Software as a Service(SAAS)	Presentation and writing board	Attendance + answering questions + discussion + homework
4	2 theoretical	3,4,5,6,7	**Types of Deployment Models** • Publis Cloud • Private cloud • Community cloud Hybrid Cloud	Presentation and writing board	Attendance + answering questions + discussion + homework
5	2 theoretical	3,4,5,6,7	**Cloud Computing Major Characteristics** (virtualization, elastic, servic oriented, dynamic	Presentation and writing board	Attendance + answering questions + discussion + homework
6	2 theoretical	3,4,5,6,7	distributed, shared, autonomic, Market oriented)	Presentation and writing board	Attendance + answering questions + discussion + homework
7	2 theoretical	3,4,5,6,7	**Cloud Services and System Architecture** • Major Cloud Computing Systems	Presentation and writing board	Attendance + answering questions + discussion + homework

			• Amazon • Google, Microsoft – Azure		
8	**2 theoretical**	3,4,5,6,7	**Resource Virtualization** • •Fundamentals of Resource Virtualization	Presentation and writing board	Attendance + answering questions + discussion + homework
9	**2 theoretical**	3,4,5,6,7	• Virtual Machine Monitor (VMM) and Virtual Machine (VM)	Presentation and writing board	Attendance + answering questions + discussion + homework
10	**2 theoretical**	3,4,5,6,7	**Cloud Storage Systems** Example Cloud System Architecture • Xen • OpenStack System Architecture	Presentation and writing board	Attendance + answering questions + discussion + homework
11	**2 theoretical**	3,4,5,6,7	**Cloud Applications and Cloud Programming** • Network Virtualization • Network Virtualization for Cloud (OSI REFERENCE MODEL)	Presentation and writing board	Attendance + answering questions + discussion + homework
12	**2 theoretical**	3,4,5,6,7	**Advanced Cloud Technologies** • Green Cloud Computing • Mobile Cloud Computing	Presentation and writing board	Attendance + answering questions + discussion + homework
13	**2 theoretical**	3,4,5,6,7	**Cloud Security** • Cloud security Risks • Operating system security	Presentation and writing board	Attendance + answering questions + discussion + homework
14	**2 theoretical**	3,4,5,6,7	• Virtual Machine Security • Security of virtualization	Presentation and writing board	Attendance + answering questions + discussion + homework

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reports .... etc

12.Learning and Teaching Resources

Required textbooks (curricular books any)	**1- RajkumarBuyya, James Broberg, Andrzej Goscinski ,"Cloud computing Principles and Paradam", 2011.** **2- BorkoFurht, ArmAndo Escalante, "Handbook of Clud computing", 2010.** **3- Gautam Shroff, "Enterprise Cloud computing",2010.**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	