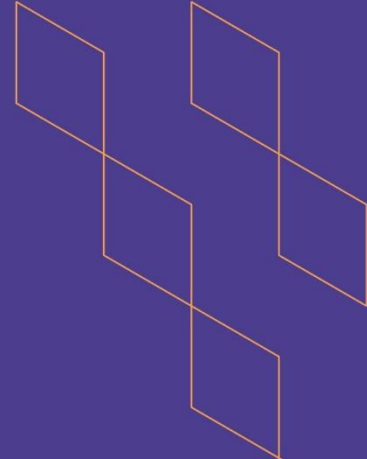




T-104
2022

Course Specification



Course Title: Cloud Computing
Course Code: IT1751
Program: Information Technology
Department: Information Technology
College: Computer Science and Information Technology
Institution: Al Baha University
Version: V2022
Last Revision Date: 03 June 2023



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A. General information about the course:

Course Identification

1. Credit hours: 3

2. Course type

a. University College Department Track Others

b. Required Elective

3. Level/year at which this course is offered: 10/ 4th Year

4. Course general Description

This course is designed to provide an introduction to the fundamental concepts and practices of cloud computing. Students will learn about the different types of clouds, deployment models, service models, and the benefits and challenges of cloud computing.

The course will begin with an overview of cloud computing and its historical development. Students will then explore the various cloud deployment models, including public, private, hybrid, and community clouds. They will also study the different service models, such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

Throughout the course, students will learn about the core technologies and infrastructure that underpin cloud computing, including virtualization, containers, and software-defined networking. They will also be introduced to cloud security and governance issues, including data privacy and compliance. In addition, they will also learn about cloud storage and database and networking. Furthermore, they will learn about cloud monitoring and management, and the cost management. Finally, they will also be introduced to real-world case studies and best practices.

By the end of the course, students will have a solid understanding of the benefits and challenges of cloud computing and be able to evaluate different cloud deployment models and service offerings for specific business needs.

5. Pre-requirements for this course (if any): None

6. Co- requirements for this course (if any): None

7. Course Main Objective(s)

1. Learning about the basic concepts of cloud computing and different service models of cloud computing, including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).





2. Gaining knowledge of the different cloud deployment models, including public, private, hybrid, and community clouds, and evaluating the benefits and challenges of each.
3. Explaining the core technologies and infrastructure that underpin cloud computing, including virtualization, containers, and data centers.
4. Identifying cloud security and governance issues, including data privacy and compliance.
5. Comprehending the cloud architecture and design including cloud computing architecture and cloud scalability and elasticity.
6. Distinguishing and comparing the cloud storage database options and services.
7. Recognizing the cloud cost management options based on pricing model optimization.
8. Discussing real-world successful cloud migration, implementation, and best practices.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	33	100%
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	33
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	33



B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define the basic concepts of cloud computing including, the infrastructure, security, and governance.	K1	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Quizzes Midterm Exams Final Exam
1.2	Understand the cloud architecture, storage, Network, monitoring, and management.	K1	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Quizzes Midterm Exams Final Exam
1.3	Identify various real-world examples of Cloud computing and the best practices.	K1	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Quizzes Midterm Exams Final Exam
2.0	Skills			
2.1	Plan a successful migration to the cloud using the appropriate types of models, deployments, storage, security, and cost options	S1	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Quizzes Midterm Exams Final Exam
2.2	Evaluate the effectiveness of cloud deployments, models, storage.	S2	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Quizzes Midterm Exams Final Exam
2.3	Demonstrate the Proficiency of communicating cloud computing concepts in oral presentation	S6	<ul style="list-style-type: none"> Assignments Oral Presentations 	<ul style="list-style-type: none"> Seminar
3.0	Attitudes			
3.1	Communicate effectively and collaborate with peers on cloud computing topics.	V1	<ul style="list-style-type: none"> Assignments Oral Presentations 	<ul style="list-style-type: none"> Seminar
3.2				
...				



C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Cloud Computing: This topic covers the definition of cloud computing, Benefits, cloud service models, cloud deployment models.	3
2.	Cloud Infrastructure: This topic covers the concepts of Virtualization, containerization, cloud computing hardware, and cloud data centers.	3
3.	Cloud Security and Governance: This topic covers the concepts cloud security risks and mitigation strategies, cloud compliance and governance frameworks, and identity and access management in the cloud.	3
4.	Cloud Architecture and Design: This topic covers the concepts of cloud computing architectures (monolithic and microservices), cloud application design principles, and cloud scalability and elasticity.	4
5.	Cloud Storage and Databases: this topic covers the concepts of cloud storage options (block, file, object), cloud database services (SQL, NoSQL, NewSQL), and cloud data backup and recovery.	4
6.	Cloud Networking and Content Delivery: This topic covers the concepts of cloud networking fundamentals, cloud load balancing and traffic management, and content delivery networks (CDNs) in the cloud.	4
7.	Cloud Monitoring and Management: This topic covers the concepts of cloud monitoring tools and techniques, cloud automation and orchestration, and cloud service level agreements (SLAs) and uptime guarantees.	4
8.	Cloud Cost Management: This topic covers the concepts of cloud pricing models (on-demand, reserved, spot), cloud cost optimization strategies, and cloud billing and budgeting	4
9.	Cloud Case Studies and Best Practices: This topic shed the light on real-world examples of successful cloud migrations and implementations, best practices for cloud computing adoption and management, and emerging trends in cloud computing	4



Total

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework and class discussion	Weekly	5%
2.	Midterm	5 th week	20%
3.	Quiz	9 th Week	15%
4.	Seminar	10 th Week	10%
5.	Final Exam	11 th Week	50%
...	Total	12 th Week	100%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)



E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Cloud Computing A Hands-on Approach by Arshdeep Bahga & Vijay Madisetti, 2014 ISBN: 9781494435141, 1494435144
Supportive References	Cloud Computing Cambridge University Press by Sandeep Bhowmik, 2020 ISBN: 9781316941386, 1316941388
Electronic Materials	<ul style="list-style-type: none"> • Access to the Saudi Digital Library (SDL). • ACM (Association for Computer Machinery) web site - http://www.acm.org/ • IEEE Computer Society web site: http://www.computer.org/portal/web/guest/home
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	A classroom or lecture hall with whiteboard for 25-30 students.
Technology equipment (projector, smart board, software)	Projector and Smartboard
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	<ul style="list-style-type: none"> • Students • Peer Reviewer • Program Leaders 	<ul style="list-style-type: none"> • Survey (indirect) • Peer review (direct) • Class visit (direct)
Effectiveness of students assessment	<ul style="list-style-type: none"> • Students • Exam Evaluation Committee • Course Coordinator 	<ul style="list-style-type: none"> • Survey (indirect) • Exam Review (direct) review of course file (direct)
Quality of learning resources	<ul style="list-style-type: none"> • Faculty • Students 	Survey (indirect)
The extent to which CLOs have been achieved	<ul style="list-style-type: none"> • Faculty 	<ul style="list-style-type: none"> • Exams (direct) • Exit Exams (direct)





Assessment Areas/Issues	Assessor	Assessment Methods
	<ul style="list-style-type: none"> Program Leaders or Course Coordinator 	
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	30/3/2023

