هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Application Development in Cloud**
Course Code:	**IT474**
Program:	**B.Sc. Information Technology**
Department:	**INFORMATION TECHNOLOGY**
College:	**CCIS**
Institution:	**MAJMAAH UNIVERSITY**
Version:	*Course Specification Version Number*
Last Revision Date:	*Pick Revision Date.*

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 3 (2,2,0)					
2. Course type					
A.	☐University	☐ College	☒ Department	☒ Track	☐Others
B.	☐Required		☒ Elective		
3. Level/year at which this course is offered: Level 8					
4. Course general Description:					
The course "Cloud Application Development" is designed to help students gain technical expertise in development with cloud technologies. Throughout the course, students will explore a scenario that provides opportunities to build a variety of infrastructures. Students will learn Cloud database development & security Studies, scaling, deployment, backup, in the context of cloud infrastructure.					
5. Pre-requirements for this course (if any)**:**					
cloud computing foundations					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s):					
students should be able to 1. Describe, develop & write code that interacts with Simple Storage, write the code that interacts with Database & Explain caching with CloudFront 2. Create an API by using Gateway 3. know how to build secure applications on cloud 4. Identify best practices to deploy applications					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid • Traditional classroom		

No	Mode of Instruction	Contact Hours	Percentage
	• E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

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				
2.0	**Skills**			
2.1	CLO1: Describe, develop & write code that interacts with Simple Storage, write the code that interacts with Database & Explain caching with CloudFront	**S2**	Mini Project, Lab Exercises	Lab Based Assignments, MiniProject
2.2	CLO2: Create an API by using Gateway	**S2**	Mini Project, Lab Exercises	Lab Based Assignments, MiniProject
2.3	CLO3: Should know how to build secure applications on cloud	**S3**	Oral /Written Communication,Seminar	Group Assignments, Mini Project
2.4	CLO4: Best practices to deploy applications	**S4**	Mini Project, Graduation	Case Study Implementation/ Laboratory /Mini project

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
			Project, Lab Exercises	
3.0	**Values, autonomy, and responsibility**			
3.1				

C. Course Content

No	List of Topics	Contact Hours
1.	**Overview of Cloud Infrastructure** • Introduction of cloud infrastructure • Running applications in the cloud • Introduction to Elastic Compute Cloud, Elastic Load Balancing (ELB), and Auto Scaling • Introduction to serverless computing	6
2.	**Introduction to Developing Introduction** •Systems development lifecycle • Steps to get started developing on cloud (AWS) • Fundamentals of working with the AWS SDKs	6
3.	**Developing Storage Solutions** • Introducing cloud Amazon S3 • Creating S3 buckets • Protecting data and managing access to cloud Amazon S3 resources	6
4.	**Securing Access to Cloud Resources Architectural need** • Shared responsibility model • Introducing IAM • Authenticating with IAM • Authorizing with IAM	6
5.	**Developing Flexible NoSQL Solutions Architectural need** • Introducing AWS database options • Key concepts for DB • Partitions and data distribution • Secondary indexes • Read/write throughput • Streams and global tables • Backup and restore	6

6.	**Developing REST APIs Architectural need** • Introducing APIs • Introducing API Gateway • Creating a REST API • Integrating with API Gateway • Deploying an API	6
7.	**Caching Information for Scalability** • Introduction • Caching overview • Caching with Elastic Cache & Caching with CloudFront • Caching strategies	6
8.	**Developing Secure Applications on AWS Architectural need** • Securing network connections • Authenticating connections	6
9.	**Automating Deployment** • Introducing DevOps • Deploying applications with AWS Cloud	6
10.	Review & Disscussion about Certification	6
	Total	**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	In-class Tests (written test)	Week 4,	10%
2.	Mid Term Exam (written test)	Week 6	20%
3.	Mini Project	Week 10	10%
4	Labs , Exercises/Assignment	Every Week	20%
5	Final Exam (written test)	Week 13	40%

*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	• Practical API Architecture and Development with Azure and AWS: Design and Implementation of APIs for the Cloud by Thurupathan Vijayakuma, Publisher: : Apress; , 188 pages, ISBN-10 9781484235546 , ISBN-13, 1st Edition, June 2018.

Supportive References	AWS Certified Solutions Architect Study Guide" 2nd Edition, by Ben Piper, David Clinton. Latest version 2021.
Electronic Materials	• Online **Online Course Notes available on D2L** • **Online reference materials available on SDL**
Other Learning Materials	Online AWS LABs

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**Class Room, PC**
Technology equipment (projector, smart board, software)	**LCD Projector, VM**
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Faculty	Direct
Effectiveness of Students assessment	Students	Indirect
Quality of learning resources		
The extent to which CLOs have been achieved		
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	