هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	Advanced Topics in Cloud Computing
Course Code:	IT478
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: 8					
4. Course general Description:					
This course covers a series of important Big-Data-related problems and their solutions on cloud. It introduces the characteristics and challenges of the Big Data, state-of-the-art computing paradigm sand platforms (e.g., MapReduce), big data programming tools (e.g., NoSQL like Hadoop and MongoDB), big data extraction and integration, big data storage, scalable indexing for big data, big graph processing, big data stream techniques and algorithms, big data visualization, and big data applications.					
5. Pre-requirements for this course (if any)**:**					
90 Credits					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s):					
The aim of this course is to help students explore the big data characteristics and challenges, know the existing big data processing platforms/tools, understand big data collection, integration and storage, learn the basics of MapReduce paradigms, learn the core techniques of processing big data, and understand different real applications and their techniques that involve big data.					

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 • E-learning		

No	Mode of Instruction	Contact Hours	Percentage
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	**Analyze the problems and challenges associated with big data applications**	**S2**	Mini Project, Lab Exercises	Lab Based Assignments, MiniProject
2.2	**Design high performance and cloud applications to support scalable online services.**	**S3**	Oral /Written Communication,Seminar	Group Assignments, Mini Project
2.3	**Design big data processing applications to efficiently process high volume and velocity data**	**S4**	Mini Project, Graduation Project, Lab Exercises	Case Study Implementation/ Laboratory /Mini project
3.0	**Values, autonomy, and responsibility**			
3.1				

C. Course Content

No	List of Topics	Contact Hours
1.	Overview of Big Data	5

2.	Big Data characteristics	5
3.	Big Data Management	10
4.	Big data programming tools (e.g., SQL and NoSQL like Hadoop, MongoDB, Spark, etc.)	10
5.	Business Motivations and Drivers for Big Data Adoption	5
6.	Big Data Adoption and Planning Considerations	5
7.	Enterprise Technologies and Big Data Business Intelligence	5
8.	Big Data Storage Concepts	5
9.	Big Data Analytic Techniques	**5**
10.	Big Data Stream Techniques	5
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz 1,2	Week 4 and 12	10%
2.	Mid Exam	Week 8	20%
3.	Exercise	Every Week	15%
4	Project	Week 13	15%
5	Final Exam	Week 16	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	Thomas Erl, Wajid Khattak, and Dr. Paul Buhler. Big Data Fundamentals: Concepts, Drivers & Techniques. The Prentice Hall Service Technology Series, ISBN-13: 978-0134291079, 2016
Supportive References	Kuan-Ching Li, Hai Jiang, Laurence T. Yang, and Alfredo Cuzzocrea. Big Data: Algorithms, Analytics, and Applications. Chapman & Hall/CRC Big Data Series, ISBN 9781482240559, 2015.
Electronic Materials	https://aws.amazon.com/training/classroom/big-data-on-aws/
Other Learning Materials	The AWS Certified Data Analytics

2. Required Facilities and equipment

Items	Resources
facilities	**Class Room, PC**

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

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	