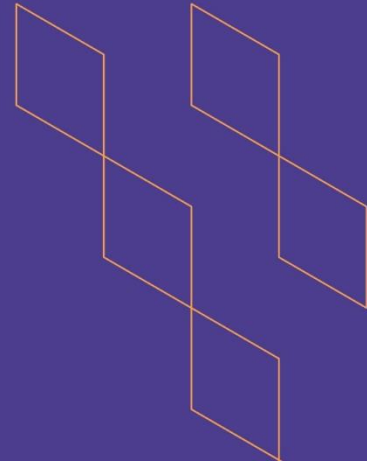




T-104
2022

Course Specification



Course Title: Blockchain Technology
Course Code: IT1514
Program: Bachelor of Information Technology
Department: Information Technology
College: Faculty of Computer Science and IT
Institution: AlBaha University
Version: V2022
Last Revision Date: 02 April 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:

4. Course general Description

This course is designed to provide an in-depth understanding of blockchain technology and its practical applications. The course covers the fundamentals of blockchain, its architecture, consensus algorithms, smart contracts, cryptography, and decentralized applications. Students will learn how to implement blockchain solutions and develop decentralized applications. The course also covers the potential applications of blockchain in various industries and the challenges faced in implementing the technology.

5. Pre-requirements for this course (if any):

None, but a basic proficiency in English writing is recommended.

6. Co- requirements for this course (if any):

7. Course Main Objective(s)

1. Understand the fundamental concepts of blockchain technology
2. Explain the architecture of blockchain and its components
3. Implement and develop decentralized applications
4. Apply cryptography techniques to secure blockchain systems
5. Analyze the different consensus algorithms used in blockchain
6. Evaluate the potential applications of blockchain in different industries
7. Identify the challenges and limitations of blockchain technology
8. Explore the future of blockchain and its impact on society and businesses
9. Discuss the legal and regulatory framework around blockchain
10. Participate in discussions on blockchain technology and its potential applications

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	33	100%
2.	E-learning		
3.	Hybrid		



No	Mode of Instruction	Contact Hours	Percentage
	<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	Demonstrate a comprehensive understanding of the fundamental concepts and principles of blockchain technology.	K1	<ul style="list-style-type: none"> Lectures Assignments Exercises 	<ul style="list-style-type: none"> Quizzes Midterm Exams Final Exam
1.2	Explain the architecture of blockchain, its components, and the different consensus algorithms used in blockchain.	K2	<ul style="list-style-type: none"> Lectures Assignments Exercises 	<ul style="list-style-type: none"> Quizzes Midterm Exams Final Exam
1.3	Analyze the potential applications of blockchain in various industries and the challenges faced in implementing the technology.	K2	<ul style="list-style-type: none"> Lectures Assignments Exercises 	<ul style="list-style-type: none"> Quizzes Midterm Exams Final Exam
2.0	Skills			
2.1	Develop decentralized applications using blockchain technology.	S1	<ul style="list-style-type: none"> Lectures Assignments Lab Exercises 	<ul style="list-style-type: none"> Quizzes Midterm Exams Final Exam
2.2	Apply cryptography techniques to secure blockchain systems and transactions.	S2	<ul style="list-style-type: none"> Lectures Assignments Lab Exercises 	<ul style="list-style-type: none"> Quizzes Midterm Exams Final Exam
2.3				
3.0	Values, autonomy, and responsibility			
3.1	Appreciate the ethical implications of blockchain technology and its impact on society.	V1	<ul style="list-style-type: none"> Assignments Oral Presentations 	<ul style="list-style-type: none"> Reports Presentations Class Discussions
3.2	Demonstrate autonomy and responsibility in evaluating the legal and regulatory	V2		

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	framework around blockchain technology.			
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Blockchain Technology	4
2.	Cryptography and Security	4
3.	Blockchain Architecture and Components	4
4.	Consensus Algorithms in Blockchain	4
5.	Smart Contracts and Decentralized Applications	4
6.	Cryptocurrencies and Blockchain	4
7.	Potential Applications of Blockchain in Industries	4
8.	Challenges and Limitations of Blockchain Technology	2
9.	Legal and Regulatory Framework of Blockchain	2
10.	Future of Blockchain and its Impact on Society and Businesses.	3
Total		33

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework and class discussion	Weekly	10%
2.	Project	9 th Week	10%
3.	Midterm	5 th week	20%
4.	Quiz	9 th Week	20%
5.	Final Exam	11 th Week	40%
...	Total		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	<ol style="list-style-type: none"> "Mastering Blockchain: Unlocking the Power of Cryptocurrencies, Smart Contracts, and Decentralized Applications" by Andreas M. Antonopoulos, ISBN 978-1-4919-7192-5, published by O'Reilly Media. "Blockchain Basics: A Non-Technical Introduction in 25 Steps" by Daniel Drescher, ISBN 978-1-4842-3628-0, published by Apress.
Supportive References	<ol style="list-style-type: none"> "Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World" by Don Tapscott and Alex Tapscott, ISBN 978-1101980132, published by Portfolio.
Electronic Materials	<ol style="list-style-type: none"> "Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction" by Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, and Steven Goldfeder. This online course is available on Coursera: https://www.coursera.org/learn/cryptocurrency "Blockchain Basics" by IBM. This online course is available on edX: https://www.edx.org/course/blockchain-basics
Other Learning Materials	None

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> A classroom or lecture hall with whiteboard for 25 students.
Technology equipment (projector, smart board, software)	projector
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	<ul style="list-style-type: none"> Students Peer Reviewer 	<ul style="list-style-type: none"> Survey (indirect) Peer review (direct)





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

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	02/03/2023

