



THE CYPRUS INTERNATIONAL INSTITUTE OF MANAGEMENT

COURSE UNIT DESCRIPTION

Course Unit Title	Blockchain and Applications	
Course Unit Code	AT400	
Type of Unit	Core	
Level of Course Unit	Second cycle	
Year of Study	First	
Number of ECTS Credits	6.0 ECTS	
Class Contact Hours	28	
Minimum Learning Effort (In Hours)	150	
Course Unit Objectives	<p>The basic aim of this course is for the students to understand the power and impact of Blockchain or Distributed Ledger Technologies (DLTs) in modern business environments, economy and society in general.</p> <p>Upon completion of this course, students will master the idea and architecture behind Blockchain and understand how to apply it to solve different real world problems.</p>	
Learning Outcomes	The students completing the course should be able to	
	CILO 1	Understand the natural evolution of payment and e-cash systems, as well as smart contracts.
	CILO 2	Understand the basic cryptographic characteristics of Blockchains.
	CILO 3	Understand the basic architectures behind the leading Blockchains; Bitcoin and Ethereum
	CILO 4	Understand the applications of Blockchain in different sectors.
	CILO 5	Understand the impact of Blockchain and Distributed Ledger Technologies in modern economy and society from different perspectives.
Name of Lecturer(s)	Dr Theodosios Mourouzis	
Mode of delivery	Face to Face	
Prerequisites or corequisites	None	
Course Content	1. History of e-cash systems and smart-contracts	CILO 1
	2. Traditional E-cash challenges: counterfeiting, double spending, immutability	CILO 1
	3. Introduction to fundamental cryptographic primitives (hash functions, PKI, digital signatures, Merkle Trees)	CILO 2

	4. Introduction to Blockchain: Underlying network architecture, consensus algorithms, private and public Blockchains, Bitcoin and Ethereum paradigms.	CILO 2,3
	5. Use Cases of Blockchain in different sectors: banking, payments, fundraising, shipping, certification industry etc	CILO 4
	6. Ethics and Dilemmas behind Blockchain Technologies.	CILO 5
Recommended or required reading	<p>Required Reading</p> <p>Textbooks</p> <ol style="list-style-type: none"> 1. Andreas Antonopoulos. <i>Mastering Bitcoin</i>. 2nd Edition, O'Reilly Publications, 2011. 2. Andreas Antonopoulos. <i>Mastering Ethereum</i>. 1st Edition, O'Reilly Publications, 2018. <p>Recommended Reading</p> <p>Textbooks</p> <ol style="list-style-type: none"> 3. Melanie Swan. <i>Blockchain: Blueprint for a New Economy</i>. 1st Edition, O'Reilly Publications, 2015. <p>Research Articles</p> <ol style="list-style-type: none"> 4. Satoshi Nakatomo. Bitcoin: A peer-to-peer electronic cash system. Available Online at academia.edu, 2008. 	
Planned learning activities and teaching methods	lectures, group work, lab work, role playing, project-based learning, homework	
Assessment methods and criteria	Class participation: 10% Assigned Project: 90%	
Language of Instruction	English	
Work Placement(s)	Not applicable	