



MODULE SPECIFICATION

Part 1: Information			
Module Title	Blockchain and Cryptocurrency		
Module Code	UFCFXQ-15-M	Level	M
For implementation from	September 2019		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	FET	Field	Computer Science and Creative Technologies
Department	CSCT		
Contributes towards	MSc Financial Technology		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
This module aims to provide conceptual understanding of the function of Blockchain as a method of securing distributed ledgers; how consensus on their contents is achieved; and the new applications that they enable. It covers the technological underpinnings of blockchain operations as distributed data structures and decision-making systems, their functionality and different architecture types. It provides a critical evaluation of existing “smart contract” capabilities and platforms, and examines their future directions, opportunities, risks and challenges. The module will cover topics that include: An Introduction to Blockchain and Cryptocurrency ○ The big picture of the today’s industry ○ Understanding the differences between Blockchain, Bitcoin, Cryptocurrencies and Distributed Ledger Technology (DLT) ○ Examples of blockchain platforms with respect to their functionality (e.g. currency, identity, chain of custody) ○ Networking, Trust and Vulnerabilities ○ Concepts of decentralisation, high and low trust societies, types of trust model ○ Examples of decentralised networks Introduction to Cryptography ○ Goals of cryptography ○ Understanding different approaches cryptography (e.g. Symmetric-key cryptography, Public-key cryptography etc.) ○ Understanding digital signatures

Application of Cryptography to Blockchain

- Introduction to Ledgers, Geneses Blocks, Consensus
- Application of hash functions to chain blocks, digital signatures to sign transactions and Proof-of-Work

Blockchain Dynamics

- Understanding of public and private blockchains and scalability issues
- Ways and the need to make hard and soft forks

Smart Contracts and Ethereum

- What are smart contracts and their potential?
- Understanding of the various legal and socio-economic issues related to the application of smart contracts.
- Examples of using smart contract in security policy and data management

Supply Chain and Identity on Blockchain

- Comparison of Blockchain with existing supply chain infrastructures
- Future of Blockchain and broader implications on technology, finance, and law including moral issues.

Part 3: Assessment

The assessment strategy for this module is a combination of a controlled condition: reflective log (Component A) and coursework assignment (Component B). In order to develop a deep learning style, the students will be encouraged to engage in many in-class activities in which they reflect and develop/express, their individual views on blockchain and cryptocurrency issues and applications.

In component B, the students will be asked to design a solution to real-word problem using blockchain. They will submit a report analysing the application of blockchain to their chosen financial domain. The problem scenario will be carefully chosen to demonstrate understanding of blockchain core principles (models, techniques and evaluation).

The coursework is required to be carried out by individual students.

Component A takes the form of a reflective log, which would help students to actively participate in their learning by spending time reflecting on material and on in class activities covered during each session of the course. This would help them to integrate these materials into their knowledge base.

Identify final timetabled piece of assessment (component and element)	Component A	
% weighting between components A and B (Standard modules only)	A:	B:
	25%	75%

First Sit

Component A (controlled conditions) Description of each element	Element weighting (as % of component)
1. Reflective Log	100%
Component B Description of each element	Element weighting (as % of component)
2. Individual Course Work Report (2000 Words)	100%

Resit (further attendance at taught classes is not required)

Component A (controlled conditions) Description of each element	Element weighting (as % of component)
1. Reflective Log	100%
Component B Description of each element	Element weighting (as % of component)
2. Individual Course Work Report (2000 Words)	100%

Part 4: Learning Outcomes & KIS Data																														
Learning Outcomes	On successful completion of this module students will be able to: - Understand the structure of a blockchain and why/when it is better than a simple distributed database [A]; - Evaluate the setting where a blockchain based structure may be applied, its potential and its limitations [A, B] - Apply problem solving skills necessary for understanding “smart” contract and its legal implications [B] - Attain awareness of the new challenges that exist in monetizing businesses around blockchain and smart contracts [A] - Be able to apply problem-solving skills to differentiate between prominent blockchain structures and permissioned blockchain service providers, including rising alliances and networks [B] - Demonstrate knowledge of making informed business decisions pertaining to Blockchain proof-of-concept implementations [B]																													
Key Information Sets Information (KIS)	<table border="1"> <thead> <tr> <th colspan="5">Key Information Set - Module data</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td colspan="3">Number of credits for this module</td> <td></td> <td>15</td> </tr> <tr> <td>Hours to be allocated</td> <td>Scheduled learning and teaching study hours</td> <td>Independent study hours</td> <td>Placement study hours</td> <td>Allocated Hours</td> </tr> <tr> <td>150</td> <td>36</td> <td>114</td> <td>0</td> <td>150</td> </tr> </tbody> </table>					Key Information Set - Module data										Number of credits for this module				15	Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours	150	36	114	0	150
Key Information Set - Module data																														
Number of credits for this module				15																										
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours																										
150	36	114	0	150																										
Contact Hours	The table below indicates as a percentage the total assessment of the module which constitutes a; Written Exam: Unseen or open book written exam Coursework: Written assignment or essay, report, dissertation, portfolio, project or in class test Practical Exam: Oral Assessment and/or presentation, practical skills assessment, practical exam (i.e. an exam determining mastery of a technique) <i>Double click in the table and type over the percentages – the table will total automatically. Please ensure that it amounts to 100%</i> <table border="1"> <thead> <tr> <th colspan="2">Total assessment of the module:</th> </tr> </thead> <tbody> <tr> <td>Written exam assessment percentage</td> <td>0%</td> </tr> <tr> <td>Coursework assessment percentage</td> <td>75%</td> </tr> <tr> <td>Practical exam assessment percentage</td> <td>25%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </tbody> </table>					Total assessment of the module:		Written exam assessment percentage	0%	Coursework assessment percentage	75%	Practical exam assessment percentage	25%		100%															
Total assessment of the module:																														
Written exam assessment percentage	0%																													
Coursework assessment percentage	75%																													
Practical exam assessment percentage	25%																													
	100%																													
Total Assessment																														
Reading List	https://rl.talis.com/3/uwe/lists/C13F4DB2-8FBD-C4AD-1F1E-72797BE98B6C.html?lang=fr-FR&login=1																													

FOR OFFICE USE ONLY

First Approval Date (and panel type)	UVP 29 May 2019 CAR ID 5026			
Revision ASQC Approval Date		Version	2	Link to RIA