

Module specification

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Module Code	COM766
Module Title	FinTech
Level	7
Credit value	20
Faculty	FACE
HECoS Code	100362
Cost Code	GACP
Pre-requisite module	None

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
MSc Computing for Business	Core

Breakdown of module hours

Learning and teaching hours	10 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	11 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	21 hrs
Placement hours	0 hrs
Guided independent study hours	179 hrs
Module duration (Total hours)	200 hrs

Module aims

This module aims to provide students with a comprehensive understanding of how technology is transforming the financial services industry, integrating concepts from computing, data science, cybersecurity, and financial systems. It introduces the evolution of FinTech and explores how digital transformation has reshaped traditional banking, payments, and investment models. Students will gain a deep appreciation of the FinTech ecosystem, including the interaction between startups, established financial institutions, regulators, and technology providers.



A core objective of this module is to equip students with both theoretical and working knowledge of the technologies driving FinTech innovation. Through hands-on practical application students will gain a technical understanding of the technologies, tools and regulatory underpinning that impacts the financial services industry.

By the end of the module, students will be able to critically evaluate FinTech innovations, design and simulate technology-driven financial solutions, and assess the balance between innovation, regulation, and security. This will prepare them to contribute effectively to the rapidly evolving landscape of financial technology and digital finance.

Module Learning Outcomes

At the end of this module, students will be able to:

1	Critically analyse the evolution of FinTech and the impact of digital transformation on traditional financial systems, institutions, and regulatory frameworks.
2	Evaluate the role and integration of core technologies in enabling innovation, efficiency, and security within financial services.
3	Assess and apply technological solutions to real work problems within financial services.
4	Critically appraise cybersecurity principles, risk management strategies, and compliance standards relevant to secure digital payment systems and financial data protection.

Assessment

Indicative Assessment Tasks:

Assessment for this module is delivered through a 100% portfolio, designed to capture the depth and breadth of students' engagement with the dynamic FinTech landscape. The portfolio encourages learners to blend theory with practice, applying advanced computing and analytical techniques to real-world financial contexts. Students will be challenged to think creatively, critically, and strategically, reflecting the interdisciplinary nature of modern financial technology.

Throughout the module, learners will develop a body of work that demonstrates their ability to analyse, synthesise and apply technological solutions within the context of financial services. The emphasis is on practical exploration and innovation, allowing students to connect classroom learning to the realities of today's digital financial systems. Students will have the opportunity to demonstrate technical competence, problem-solving ability, and professional judgement through applied tasks that mirror authentic industry challenges.

Portfolio assessments may comprise multiple pieces of work that collectively demonstrate a student's knowledge and skills developed throughout the module. These may take the form of one or two substantial tasks, or a series of smaller tasks, typically ranging from one to eight across the duration of the module.



Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1, 2, 3, 4	Portfolio	5000 Words or Equivalent	100%	N/A

Derogations

N/A

Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, online activities any additional content that supports their learning. As this module progresses, the strategies will change to best support a diverse learning environment. For each week, a topic will be started with tutor-led demonstrations, and practical-based sessions will be given to ensure that the students get to practice what they have been taught in relevant concepts. Sessions will be intertwined between instructional explanation and practical depending on the specific indicated syllabus necessities.

Welsh Elements

This module is designed to support Welsh-speaking students in line with the Welsh Language Standards. While the primary delivery will be in English, students will have the opportunity to submit assessments, including coursework and projects, in Welsh if preferred. Relevant module materials, such as reading lists, key texts, and guidance, will be available bilingually upon request, ensuring accessibility for all students. Additionally, where possible, guest speakers, case studies, or examples may include references to the Welsh business context, especially in areas such as data use in local industries and Welsh public sector organisations.

The department encourages students to develop bilingual digital skills by incorporating Welsh-language datasets, tools, and resources where appropriate, offering an inclusive learning environment. We also support the development of bilingual visualisation techniques, enabling students to create digital outputs that reflect the Welsh language, should they wish to do so.

Indicative Syllabus Outline

- Exploring the FinTech Revolution: Evolution of financial technology and its transformative impact on global financial services.
- From Banks to Bytes: Comparative analysis of traditional and digital financial systems and how innovation reshapes the customer experience.
- The FinTech Ecosystem in Action: Startups, incumbents, regulators, and investors—how collaboration and disruption drive industry growth.
- Core Enabling Technologies: The strategic role of cloud computing, APIs, and open banking in building connected, data-driven financial platforms.
- Intelligent Finance: Application of data analytics, machine learning, and AI for fraud detection, credit scoring, and personalised financial services.
- Blockchain Beyond the Hype: Understanding distributed ledgers, consensus mechanisms, smart contracts, and the rise of decentralized finance (DeFi).
- Digital Assets and Crypto economics: Exploring cryptocurrency markets, tokenisation, and the evolving regulatory and risk landscape.
- Innovating Payments and Banking: Mobile wallets, payment gateways, and Banking-as-a-Service (BaaS) as drivers of global financial inclusion.
- Securing the Digital Economy: Principles of PCI DSS, encryption, and network security in protecting cardholder data and digital transactions.
- Cyber Resilience and RegTech: Risk management, authentication, compliance automation, and data privacy under frameworks such as GDPR and PSD2.
- Emerging Frontiers: Quantum computing, IoT, and sustainability shaping the next generation of financial innovation.
- Intelligent Automation and Generative AI: How large language models are transforming analytics, decision-making, and customer engagement in finance.
- Applied FinTech Practice: Real-world case studies (e.g., Revolut, Monzo, Wise) and project-based learning through the design or simulation of FinTech solutions using Python, APIs, and blockchain technologies.

Indicative Bibliography

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads:

There are no essential texts; the module will use relevant online reference material.



Other indicative reading:

Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction*. Princeton University Press.

Antonopoulos, A. M., & Wood, G. (2018). *Mastering Ethereum: Building Smart Contracts and DApps*. O'Reilly Media.

Harvey, C. R., Ramachandran, A., & Santoro, J. (2021). *DeFi and the Future of Finance*. John Wiley & Sons.

European Central Bank (2022). *Crypto-Assets: Developments and Policy Implications*. ECB.

Administrative Information

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