**Technologies for Finance – 3-0-0-3**

**Course Objectives:**

1. To Explain fintech ecosystem
2. To Define digital currency
3. To Apply Artificial Intelligence concepts to markets
4. To Examine the role of bigdata in Fintech

**Abstract**

Technologies in FinTech -The Fintech eco system, The Fintech product line The resource-based view of the firm. Overview of FinTech technologies – Block chain, Big data, Artificial Intelligence, Applications Programming Interfaces. Money **–** Definitions and the rise of digital money. Digital signatures and Cryptography **-** Non private digital signature scheme, Blind signatures and Digi-cash, The mechanics of e-cash, Cryptography types. Distributed ledger technology - Bitcoin, DLT framework and Bitcoin, Mechanics of Bitcoin Network, Architecture of the Bitcoin Blockchain, Ethereum. Artificial Intelligence **-** Machine learning, supervised learning, semi-supervised learning, unsupervised learning, reinforcement learning, deep learning, natural language processing, Applying AI to markets. Application of Blockchain, cryptocurrency and AI in Finance. Application of bigdata with FinTech.

**Long Syllabus**

**Technologies in FinTech 6 hours**

The Fintech ecosystem, The Fintech product line – Payments, Crowdlending, Investments, Insurance, Regulation. The resource-based view of the firm, Dynamic capabilities, Sustainable competitive advantage – brands, value proposal, customer relationships, Overview of FinTech technologies – Block chain, Big data, Artificial Intelligence, Applications Programming Interfaces

**Money 4 hours**

The sovereign definition, The metallic definition, The trust definition, The fiat definition, The electronic definition, The digital definition, Money as Energy Model, The rise of digital money – a consolidated construct and taxonomy.

**Digital signatures and Cryptography 6 hours**

Non private digital signature scheme, Blind signatures and Digi-cash, The mechanics of e-cash. Cryptography – Historical symmetric ciphers, The Caesar cipher, Modular Arithmetic, Modern cryptography, Architecture of modern cryptography, Digital signatures, hashes, global system for mobile

**Distributed ledger technology 6 hours**

The Cambridge report, Bitcoin, DLT framework and Bitcoin, Mechanics of Bitcoin Network, Architecture of the Bitcoin Blockchain, Ethereum

**Artificial Intelligence 6 hours**

Machine learning, supervised learning, semi-supervised learning, unsupervised learning, reinforcement learning, deep learning, natural language processing, Applying AI to markets: Algorithmic trading, The efficient market hypothesis, Behavioral finance, Automated trading strategies, origin of rules and trading, Introduction to modelling: algorithmic trading, a valid model, chatbots

**pplication of Blockchain, cryptocurrency and AI in Finance 4 hours**

Logic of blockchain, cryptocurrency, blockchain in financial industry – banking industry, corporate governance. Artificial intelligence and big data in Finance – Fintech and banking industry, AI and lending platforms, AI and investing

**Application of bigdata with FinTech 4 hours**

The emergence of financial technologies, bigdata in financial services, financial technology and big data, challenges of using bigdata in financial technology

At the end of the course, students will be able:

1. To Explain fintech ecosystem
2. To Define digital currency
3. To Apply Artificial Intelligence concepts to markets
4. To Examine the role of bigdata in Fintech

**Reference Textbooks:**

* Burke, J. (2021). *Financial Services in the twenty first century*. Palgrave Macmillan, Switzerland.
* Reyes-Mercado, P. (2021). *FinTech Strategy - Linking entrepreneurship, finance, and technology.* Palgrave Macmillan, Switzerland
* Moon, P. M. & Huang S. H. (2021). *Fintech with Artificial Intelligence, Big Data, and Blockchain.* Springer, Singapore.