MARUDHAR KESARI JAIN COLLEGE FOR WOMEN (AUTONOMOUS)
VANIYAMBADI

DIPLOMA IN FINTECH

Curricula Structure

Semester - 1:

Course Code	Title of Course	Hours	Credit	Marks		
				Total	Internal	External
DFT11	Introduction to Financial Technology	4	4	100	25	75
DFT12	Regulatory and Legal aspects of Fintech	4	4	100	25	75
DFT13	Fintech in Banking	4	4	100	25	75
DFT14	Cyber Security	4	4	100	25	75
DFT11P	Cyber Security (Practical)	4	2	100	25	75
DFT12P	Data Analytics using Excel (Lab)	4	2	100	25	75
		24	**20**	**600**	**150**	**450**

Semester – 2:

Course Code	Title of Course	Hours	Credit	Marks		
				Total	Internal	External
DFT21	Financial markets and Instruments	4	4	100	25	75
DFT22	Block Chain and Crypto Currency	4	4	100	25	75
DFT23	AI and Machine Learning in Finance	4	4	100	25	75
DFT24	Wealth Tech and Investment Platforms	4	4	100	25	75
DFT21P	Python programming lab	4	2	100	25	75
DFT22P	Project	4	2	100	25	75
		24	**20**	**600**	**150**	**450**

FIRST YEAR – I SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT11	**Introduction to Financial Technology**	**Core**	**4**	**-**	**-**		**4**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To understand about Basic concept in Fin tech
LO2	To grasp the Fin-tech Platform and Technology
LO3	To analyse and evaluate the driving technology innovation in Finance.
LO4	To evaluate the trends which involved in Fin tech Industry
LO5	To learn various analytics tools used in financial service industry

Unit	Content	Hours
1	**Introduction to Fin-tech** Meaning – concepts - Evolution of Fin-tech across the world- overview of Fin tech disruptions in the area of investment, lending and wearable's.	10
2	**The Technology with Fin-tech** Fin Tech Associated technology: Cloud Computing - Block chain - Crypto currencies- Robo Advisors- Biometrics and IoT (Basic Concepts)	10
3	**Fin-tech Trends** Introduction- AI powered solutions- Green Fin tech – Digital wallet transformation- Embedded finance revolution- Buy now, pay later (PNPL) Maturation- Effects of Fin-tech on Payment Innovations.	15
4	**Fin-tech in different sectors** Fin tech transformation and benefits in Banking - Health - Real Estate - Insurance Sector- Service Sector	10
5	**Analytical tools in Fin – tech** An Introduction to Data Analytics- Role of Analytics in the Modern World- Basics of Statistical Analysis: Descriptive and Inferential Statistics-Mean/Median/Mode Standard Deviation / Covariance / Correlation -Basics of Python for Data Analysis: Installation of Anaconda-Data Types and Functions-Data Manipulation and Preparation, Data Visualization in Python, Sentiment Analysis.	15

CO	Course Outcomes Students will be able to
CO1	To understand elements and principles of Fin tech.
CO2	To understand the basics of Crypto currencies.
CO3	Acquire the knowledge on trends in Fin tech.
CO4	To analyse the effect of Fin tech in various sectors
CO5	To remember the basics of data analysis

Textbooks:	
1	Global Fin Tech: Financial Innovation in the connected world/ shrier, L. David Alex Pent land
2	Introduction to Fin tech, IST Edition| Technology in specific Financial process cutting edge technology/ Chandrahaun Chavan and Atul Patankar
4	Theo Lynn , John G. Mooney, Pierangelo Rosati, Mark Cummins (2018), Disrupting Finance: Fin Tech and Strategy in the 21st Century (Palgrave Studies in Digital Business & Enabling Technologies), Macmillan Publishers, New York (US)
Reference Books:	
1	Bitcoin for Non-Mathematicians: Exploring the foundations of Crypto, SlavaGomzin/
2	Universal Publishers, USA, Latest 1 ST Edition 2020
3	Gupta P.K. (2021), "Insurance and Risk Management "6th Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
4	Susanne Chishti., & Janos Barberis (2016), The Fintech book: The financial technology hand book for investors, entrepreneurs and visionaries .John Wiley & Sons.

FIRST YEAR – I SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT12	**Regulatory and legal aspects of Fin tech**		**4**	**-**	**-**	**-**	**4**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To understand the regulatory frame work of fin tech
LO2	To understand the digital regulations and risk management
LO3	To understand about Anti-Money Laundering (AML) and Know Your Customer (KYC) Requirements
LO4	To evaluate the Data Protection and Cyber security Law
LO5	To analyse Regulations and Compliance of RBI towards Fin tech

Unit	Content	Hours
1	**Regulatory Fundamentals** Meaning - principles of financial regulation – Fin tech regulatory bodies - legal frameworks governing financial institutions - Difference between legal and regulatory law –consequences.	12
2	**Risk Management & Digital Regulatory Reporting** Reg - Tech uses - Risks: operational, financial, and compliance risks - Accurate regulatory reporting: real-time reporting and data-driven approaches.	12
3	**Anti-Money Laundering (AML) and Know Your Customer (KYC)** Introduction to AML and KYC requirements for Fin Tech companies – Financial Action Task Force (FATF) - Role of FATF - Reg Tech tools and strategies to AML/KYC for data privacy and other relevant areas.	12
4	**Data Protection and Cyber security Laws** General Data Protection Regulation (GDPR) - its impact on Fin Tech - CCPA, DPAs- Powers and functions of CCPA & DPA - Cyber security regulations in India – Indian Cyber Security regulation bodies.	12
5	**Regulations and Compliance of RBI** RBI Regulations in Fin tech – Self regulatory approach - The regulatory sandboxes – principles, objectives, benefits and regulatory requirements.	12

CO	Course Outcomes Students will be able to
CO1	To gain the knowledge of legal regulations in financial technology
CO2	To gain knowledge on risk management and Digital regulations reporting
CO3	To evaluate the role of Anti-Money Laundering (AML) and Know Your Customer (KYC)
CO4	To examine the Data Protection and Cyber security Laws
CO5	To Assess regulation and compliance of RBI towards Fin tech

Textbooks:	
1	Fostering Innovation with Fin tech, Reg Tech, Lustina Alina Boitan and Kamilla IGI global publications
2	The Reg Tech book: The financial technology handbook for investors, entrepreneurs and visionaries in regulation, Janos Barberies, Douglas W. Arner, Ross P. Buckley, Wiley Publishers, 2019
3	Reg Tech for Business Growth: How Financial Services Firms can Profit from Regulatory Compliance , Matt Elton, Kogan Page.
Reference Books:	
1	Sundaram KPM &Varshney P. N., (2020), "Banking Theory, Law and Practice", 20thEdition, Sultan Chand &Sons, NewDelhi.
2	Gordon & Natarajan, (2022),"Banking Theory, Law and Practice", 9th Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
3	Gupta P.K . (2021), "Insurance and Risk Management "6th Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
4	Susanne Chishti., & Janos Barberis (2016), The Fintech book: The financial technology hand book for investors, entrepreneurs and visionaries.John Wiley & Sons.

FIRST YEAR – I SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT13	**Fin tech in Banking**		**4**	**-**	**-**	**-**	**4**	**4**	**25**	**75**	**100**
Learning Objectives											
LO1	To understand the evolution of new era banking										
LO2	To explore the digital payments techniques in banking										
LO3	To analyse the role of Contemporary Developments in Banking										
LO4	To understand the concept of AI in Banking										
LO5	To analyze cloud computing in banking										

Unit	Content	Hours
1	**Introduction to Banking:** Banking: - Introduction – Meaning - Brief History of Banking -Banking Technology Trends –Digital Financial Revolution - Technology in Banking sector in India – Impact of Technology impacts the Banking.	12
2	**Digital Payments in Banking:** Introduction to digital payments - Components of digital payment and stakeholders - Modes of digital payments- Banking Cards - Unified Payment Interface (UPI) - e-wallets - Unstructured Supplementary Service Data (USSD) - Aadhar enabled payments - Digital payments related common frauds and preventive measures.	12
3	**Contemporary Developments in Banking:** Distributed Ledger Technology – Block chain: Meaning - Structure of Block Chain - Types of Block Chain - Differences between DLT and Block chain - Benefits of Block chain and DLT - Unlocking the potential of Block chain & Crypto currencies - Central Bank Digital Currency (CBDC)	12
4	**AI in Banking:** AI in Banking: Current scenario of AI in Banking - Applications of AI in Banking - Importance of AI in banking - Banking re-imagined with AI.	12
5	**Cloud Banking:** Cloud banking - Meaning – Characteristics- Benefits in switching to Cloud Banking - Cloud banking platforms and services - Service models (IaaS, PaaS, SaaS)	12

CO	**Course Outcomes** **Students will be able:**
CO1	To Relate the transformation in banking from traditional to new age
CO2	To Apply modern techniques of digital banking
CO3	To analyse the contemporary developments in banking
CO4	To Examine the role of AI in Banking
CO5	To Assess cloud computing techniques.

Textbooks:	
1	Indian Institute of Banking and Finance (2021),"Principles& Practices of Banking",5th Edition, Macmillan Education India Pvt. Ltd, Noida, Uttar Pradesh.
2	Emmett, Vaughan, There se VaughanM.,(2013), " Fundamentals of Risk Insurance",11th Edition, Wiley & Sons, New Jersey, USA.
3	Theo Lynn , John G. Mooney, Pierangelo Rosati, Mark Cummins (2018), Disrupting Finance: Fin Tech and Strategy in the 21st Century (Palgrave Studies in Digital Business & Enabling Technologies), Macmillan Publishers, New York (US)
Reference Books:	
1	Sundaram KPM &Varshney P. N., (2020), "Banking Theory, Law and Practice", 20thEdition, Sultan Chand &Sons, NewDelhi.
2	Gordon & Natarajan, (2022), "Banking Theory, Law and Practice", 9th Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
3	Gupta P.K.(2021),"Insurance and Risk Management" 6th Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
4	SusanneChishti.,&JanosBarberis(2016),TheFintechbook:Thefinancialtechnology hand book for investors, entrepreneurs and visionaries. John Wiley & Sons.

FIRST YEAR – I SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT14	**Cyber Security**	Core	**4**	**-**	**-**	**-**	**4**	**4**	25	75	100

Learning Objectives	
LO1	To make the students to understand the concepts of cyber security
LO2	To know the cyber crimes, their nature & legal framework for remedies
LO3	To learn the reporting procedures of social media platform
LO4	To understand the basic security aspects related to Computer and Mobiles
LO5	To understand the Cyber crimes related to fin tech

Unit	Content	Hours
1	**Introduction to Cyber security** Defining Cyberspace and Overview of Computer and Web-technology - Architecture of cyberspace- Communication and web technology - Internet - World wide web - Advent of internet - Internet infrastructure for data transfer and governance- Internet society- Regulation of cyberspace- Concept of cyber security- Issues and challenges of cyber security.	10
2	**Cyber crime and Cyber law** Classification of cyber crimes- Common cyber crimes - cyber crime against women and children- financial frauds - social engineering attacks- malware and ransomware attacks- zero day and zero click attacks - Cybercriminals modus-operandi - Reporting of cyber crimes - Remedial and mitigation measure - Legal perspective of cyber crime- IT Act 2000 and its amendments - Cyber crime and offences - Organisations dealing with Cyber crime and Cyber security in India - Case studies.	14
3	**Social Media Overview and Security** Introduction to Social networks - Types of Social media - Social media platforms, Social media monitoring - Hashtag, Viral content - Social media marketing - Social media privacy, - Challenges - opportunities and pitfalls in online social network - Security issues related to social media - Flagging and reporting of inappropriate content- Laws regarding posting of inappropriate content - Best practices for the use of Social media - Case studies.	14

4	**Digital Devices Security, Tools and Technologies for Cyber Security** End Point device and Mobile phone security, Password policy, Security patch Management, Data backup, Downloading and management of third party software, Device security policy, Significance of host firewall and Ant-virus, Management of host firewall and Anti-virus, Wi-Fi security, Configuration of basic security policy and permissions.	12
5	**Cyber security in Fin tech** Introduction to fin tech and cyber security - Importance of cyber security in fin tech – Cyber security Challenges in Fin tech- Cyber security Measures for Fin tech Companies- Cyber security Trends in the Fin tech Industry	10

CO	Learning Outcomes: After completion of this module, students would be able
CO1	To understand the concept of Cyber security and issues and challenges associated with it.
CO2	To understand the cyber crimes, their nature, legal remedies and as to how report the crimes through available platforms and procedures
CO3	To appreciate various privacy and security concerns on online Social media and understand the reporting procedure of inappropriate content, underlying legal aspects and best practices for the use of Social media platforms.
CO4	To understand the basic security aspects related to Computer and Mobiles. They will be able to use basic tools and technologies to protect their devices
CO5	To understand the basic security aspects related to fin tech in cyber security.

TEXT BOOK	
1.	Cyber Crime Impact in the New Millennium, by R. C Mishra , Auther Press. Edition 2010. Fundamentals of Network Security by E. Maiwald, McGraw Hill.
2.	Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by Sumit Belapure and Nina Godbole, Wiley India Pvt. Ltd. (First Edition, 2011)
3.	Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson , 13th November, 2001)
4.	Electronic Commerce by Elias M. Awad, Prentice Hall of India Pvt Ltd.
5.	Cyber Laws: Intellectual Property & E-Commerce Security by Kumar K, Dominant Publishers.
6.	Network Security Bible, Eric Cole, Ronald Krutz, James W. Conley, 2nd Edition, Wiley India Pvt. Ltd.

FIRST YEAR – I SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT11P	**Cyber Security - Practical**	Practical	**0**	**0**	**4**	**0**	**2**	**4**	25	75	100
Learning Objectives											
LO1	To make the students to understand the concepts of cyber security										
LO2	To know the cyber crimes, their nature & legal framework for remedies										
LO3	To learn the reporting procedures of social media platform										
LO4	To understand the Cyber crimes related e- commerce.										
LO5	To understand the basic security aspects related to Computer and Mobiles										
Unit	**Content**										

1. Basic checklist, privacy and security settings for popular Social media platforms.
2. Reporting and redressal mechanism for violations and misuse of Social media platforms.
3. Configuring security settings in Mobile Wallets and UPIs.
4. Checklist for secure net banking.
5. Setting, configuring and managing three password policy in the computer (BIOS, Administrator and Standard User).
6. Setting and configuring two factor authentications in the Mobile phone.
7. Security patches management and updates in Computer and Mobiles.
8. Managing Application permissions in Mobile phone.
9. Installation and configuration of computer Anti-virus.
10. Installation and configuration of Computer Host Firewall.
11. Wi-Fi security management in computer and mobile.

FIRST YEAR – I SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT12P	**Data analytics using Excel Lab**	**Practical**	-	-	4	-	2	**4**			

Learning Objectives	
LO1	To understand about the Excel basics (Interface and Navigation)
LO2	To Learn Data Manipulation and cleaning
LO3	To study about Look up Functions & If & Logical functions
LO4	To learn about Pivot tables and Data summarization
LO5	To understand about Data Visualization

Unit	Content	Hours
1	**Introduction to Excel** Interface and navigation-Data entry and editing-Cell formatting and Styling-Basic formulas (addition, subtraction, multiplication and division)-Cell referencing (Relative, Absolute, Mixed)	
2	**Data Manipulation and cleaning** Sorting and filtering data-Removing duplicates-Handling missing Values(Blank cells)-Data validation(Ensuring data integrity)- Text Manipulation functions (CONCATENATE,LEFT,RIGHT,MID)	
3	**Lookup Functions** Vlook up / HLook up - Index and Match - Creating Smooth User Interface Using Look up –Nested functions-Reverse Look up using Choose Function–IF and Logical functions (AND, OR)-Conditional Formatting based on data criteria.	
4	**Pivot Tables and Data summarization** Creating Simple Pivot Tables - Basic and Advanced Value Field Setting-Classic Pivot table - Choosing Field- Filtering- Pivot Tables-Modifying Pivot Table Data	
5	**Data visualization** Various Charts i.e. Bar Charts / Pie Charts / Line Charts –Customize chart elements (Titles, Labels, Axes)- Interpretation trends and patterns from charts.	

CO	Course Outcomes
CO1	Students can able to gain knowledge about Excel and also interface and navigations on excel
CO2	Students can perform the data manipulation and cleaning in excel
CO3	Students can examine about the lookup functions on excel
CO4	Ensure about the pivot tables and data summarization
CO5	Knowledge about the Data visualization

TEXT BOOK	
1	Mastering Advanced Excel Paper back by Ritu Arora
2	Advanced Excel Essentials by Jordan Goldmeier
3	Excel Basics to Advanced by Chandraish Sinha
4	Excel Advanced by S Nadeem Shah
REFERENCEBOOKS	
1.	Mastering Advanced Excel Made Easy by A.K.Gupta
2.	Advanced Excel for Professionals by S.Jain
3.	Data Analysis Using Microsoft Excel by Michael R.Middle ton

SEMESTER -II

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT21	**Financial markets and Instruments**	**Core**	**4**	**-**	**-**		**4**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To Understand the basic concepts of the finance markets in India
LO2	To Identify the underlying structure and functions of Indian financial markets Familiarise the methods of issuing shares and the role of intermediaries in the primary market
LO3	To Learn about the trading mechanism in stock market as well as Role of SEBI
LO4	To Gain Knowledge on debt (Bond) Market and Forex market
LO5	Understand and differentiate Mutual Funds, Venture Capitalist and their role

Unit	Content	Hours
1	**FINANCIAL MARKETS IN INDIA** Indian financial system and markets – structure of financial markets in India –Types-Participants in financial Market – Regulatory Environment, – RBI, CCIL, Common securities market, Money market, – Capital market – Governments philosophy and financial market – financial instruments	12
2	**INDIAN CAPITAL MARKET- PRIMARY MARKET** Primary Market – Primary market system – Types of scripts – Issue of capital: process, regulation pricing of issue, – Methods of floating new issues, Book building- Primary markets intermediaries: commercial banks, development banks, Merchant banker, issue managers, rating agencies etc – Role of primary market – Regulation of primary market.	12
3	**SECONDARY MARKET** Stock exchanges in India – History and development -listing – Depositaries – Stock exchange mechanism: Trading, Settlement, risk management, Basics of pricing mechanism – Player and stock exchange – Regulations of stock exchanges –Role of SEBI – BSE, OTCEI, NSE, ISE, – Role of FIIs, MFs and investment bankers.	12
4	**DEBT MARKET AND FOREX MARKET** Bond markets in India: Government bond market and its interface with capital market – Components of bond market – G-Sec, T-Bills,	12

	Corporate Bonds, Yield conventions, Role of primary dealers, Auction Markets – Pricing of Bonds. Introduction to Forex markets, basics in exchange rates theory – Forex risk exposures and basics of corporate forex risk management.	
5	**MUTUAL FUNDS, DERIVATIVES MARKETS AND VENTURE CAPITAL AND PRIVATE EQUITY** Mutual funds institutions in India. Types of mutual funds, Basics in portfolio management, Metrics of performance for fund manager Introduction to Derivatives and the size of derivatives markets -Brief introduction to forwards, Options, Futures and Swaps. Role of VCs and PEs in financial markets – Venture capital and Private equity	12

CO	**Course Outcomes** **Students Can able to**
CO1	Understand the basic concepts of the finance markets in India
CO2	Identify the underlying structure and functions of Indian financial markets Familiarise the methods of issuing shares and the role of intermediaries in the primary market
CO3	Learn about the trading mechanism in stock market as well as Role of SEBI
CO4	Gain Knowledge on debt (Bond) Market and Forex market
CO5	Understand and differentiate Mutual Funds, Venture Capitalist and their role

Textbooks:	
1	Pathak, Bharati V., Indian Financial System: Markets, Institutions and Services, Pearson education (Singapore), New Delhi, Fourth edition, 2014.
2	Bhole, L.M, Financial institutions and Markets: Structure, Growth and Innovations, McGrawHill, New Delhi, Sixth edition, 2017
Reference Books:	
1	Christopher Viney and Peter Phillips, Financial Institutions, Instruments and Markets (2015), 8th Edition published by McGraw Hill.
2	Saunders, Anthonu and Cornett, Marcia Millon, Financial markets and Institutions: An Introduction to the risk management approach, McGrawHill, Irwin, New York,3rd Edition,2017.
3	Fabozzi, Frank J. and Modigliani, Franco, Capital Markets: Institutions and Markets, Prentice Hall of India, New Delhi, Fourth edition, 2009.

Web Resources

1	Unit-3.pdf
2	805 Financial Markets Management XI.pdf
3	Financial-Intitutions-and-Markets.pdf
4	819029_livre_chapitre_5_en.pdf

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	2	3
CO3	3	2	3	2	2	3	2	3	3	3	3
CO4	3	2	2	1	2	3	2	3	3	2	2
CO5	3	3	2	3	3	2	3	3	3	1	3
Total	15	12	13	12	13	14	13	15	15	12	14
Average	3	2.4	2.6	2.4	2.6	2.8	2.6	3	3	2.4	2.8

3 – Strong, 2- Medium, 1- Low

SEMESTER II

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT22	**Block Chain And Crypto Currency**		**4**	**0**	**0**	**0**	**4**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To understand the conceptual elements of block chain and distributed Ledger Technologies
LO2	To summarize the major developments related toblock chain and crypto currencies.
LO3	To identify alternative techniques to proof of work for block chain protocols

Unit	Content	Hours
1	**Introduction to Blockchain, Cryptocurrencies and Distributed Ledgers:** Blockchain – Distributed Ledgers – Cryptographic Basics for Cryptocurrency – Hashing – Signature Schemes – Encryption Schemes and Elliptic Curve Cryptography – CAP Theorem and Blockchain – Categories of Blockchains: Public, Private, Permissioned Ledgers, Tokenized and Tokenless Blockchains, Sidechains.	12
2	**Essentials of Cryptocurrencies** Distributed Identity: Public and Private Keys, Digital Identification and Wallets – Decentralized Network – Distributed Ledger: Permissioning Framework, Blockchain Data Structure – Double Spending Problem – Network Consensus – Sybil Attacks – Block Rewards and Miners – Difficulty under Competition – Forks and Consensus Chain – The 51% Attack – Confirmations and Finality – The Limits of Proof-of-Work – Alternatives to Proof-of-Work.	12
3	**Blockchain Implementations** Bitcoin: Structure and Merkle Root – Eventual Consistency and Bitcoin – Byzantine Fault Tolerance – Bitcoin and Secure Hashing – Bitcoin Block Size – Bitcoin Mining – Proof-of-Work (PoW) Mechanism – Bitcoin Scripting. Blockchain Collaborative Implementations: Hyperledger, Corda – ERC-20 and the Token Explosion.	12
4	**Decentralization Using Blockchain** Blockchain and the Full Ecosystem of Decentralization – Smart Contracts – Decentralized Autonomous Organizations (DAOs) – Decentralized Applications (DApps) – Platforms for Decentralization.	12

5	**Future Uses of Blockchain** Applications in Financial Services: Accounting and Audit, Global Payments, Programmable Money – Citizen Identification and Voting Systems – Healthcare: Electronic Health Records – Supply Chain Management – Trade Finance – Tokenization of Real Assets.	12

CO	**Course Outcomes** **Students will be able to:**
CO1	Understand the basis for block chain and crypto currency.
CO2	Understand the essentials of cryptocurrency
CO3	Categorise the various implementation of block chains
CO4	Understand the decentralization of distributed ledger technology and its applications.
CO5	Choose a block chain implementation based on real time scenario

Textbooks:	
1	Treccani, A., Lipton, A. (2021), Blockchain and Distributed Ledgers: Mathematics, Technology, and Economics – first edition, Singapore World Scientific Publishing Company.
2	Watten hofer, R. (2019). Block Chain Science: Distributed Ledger Technology – Third Edition, United States: Independently published.
Web References:	
1	https://www.local1070.org/system/files/12.28.21_crypto_seminar.pdf
2	https://blockchain-observatory.ec.europa.eu/document/download/1063effa-59cc-4df4-aeee d2cf94f69178_en?filename=Blockchain_For_Beginners_A_EUBOF_Guide.pdf
3	https://www.slideshare.net/slideshow/blockchain-technology-and-cryptocurrency/118307382#1
4	https://ntiprit.gov.in/pdf/blockchainanddistributed/Blockchain_Introduction_KR.pdf

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	2	1	2	3	2	1	1	1	1
CO2	3	1	2	2	1	2	2	2	1	1	2
CO3	2	2	2	2	2	1	2	2	1	2	2
CO4	2	2	2	2	2	1	2	2	2	2	2
CO5	2	2	2	2	2	1	2	2	1	2	2
TOTAL	11	9	10	9	9	8	10	9	6	8	9
AVERAGE	2.2	1.8	2	1.8	1.8	1.6	2	1.8	1.2	1.6	1.8

3 – Strong, 2- Medium, 1- Lows

SEMESTER II

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN FINANCE

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT23	**Artificial Intelligence and Machine Learning in Finance**	**Core**	**2**	**1**	**1**	**-**	**4**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To study about uninformed and Heuristic search techniques.
LO2	To learn techniques for reasoning under uncertainty.
LO3	To introduce Machine Learning and supervised learning algorithms.
LO4	To study about ensembling and unsupervised learning algorithms.
LO5	To learn the basics of deep learning using neural networks.

Unit	Content	Hours
1	**PROBLEM SOLVING** Overview of Artificial Intelligence – Importance and Scope in Financial Systems – AI vs. Traditional Automation – Applications in Banking, Insurance, and Stock Trading – Introduction to Search and Knowledge Representation – Case Study: Using AI to recommend Investment Products, Using AI to recommend Credit Offers.	12
2	**PROBABILISTIC REASONING** Problem Solving using AI – Search Strategies: Breadth First, Depth First, and Heuristic Search – Knowledge Representation through Simple Rules and Decision Tables – Case Study: Automated Loan Approval, Credit Card Limit Adjustment – Financial Chatbots and Expert Systems for Customer Support.	12
3	**SUPERVISED LEARNING** Machine Learning Basics – Supervised Learning – Linear Regression for Stock Price Forecasting – Logistic Regression for Credit Risk – Decision Trees for Loan Default Prediction – Random Forests and Support Vector Machines – Model Evaluation using Accuracy and Confusion Matrix.	12
4	**ENSEMBLE TECHNIQUES AND UNSUPERVISED LEARNING**	12

	Unsupervised Learning – Clustering and Association Rules – K-Means for Customer Segmentation – Market Basket Analysis for Investment Patterns – Fraud Detection using Anomaly Detection– Dimensionality Reduction – Case Study: Grouping Customers based on spending behaviour.	
5	**NEURAL NETWORKS** Basics of Artificial Neural Networks – Input, Hidden, and Output Layers – Training a Simple Neural Network – Financial Forecasting using Neural Networks – Deep Learning Overview – Applications in Stock Trend Prediction, Chatbots, and Sentiment Analysis of Financial News – Ethical and Responsible Use of AI in Finance.	12

CO	**Course Outcomes** **Students Can able to**
CO1	Use appropriate search algorithms for problem solving
CO2	Apply reasoning under uncertainty
CO3	Build supervised learning models for financial data
CO4	Build ensembling and unsupervised models for financial data
CO5	Build deep learning neural network models

Textbooks:	
1	Sundaresan, B., and R. Nithinkumar. *Artificial Intelligence and Machine Learning*. Charulatha Publications, 2021.
2	Ethem Alpaydin, "Introduction to Machine Learning", MIT Press, Fourth Edition, 2020.
Reference Books:	
1	Stuart Russell and Peter Norvig, "Artificial Intelligence – A Modern Approach", Fourth Edition, Pearson Education, 2021.
2	Tatsat, Hariom, Sahil Puri, and Brad Lookabaugh. *Machine Learning and Data Science Blueprints for Finance: From Building Trading Strategies to Robo-Advisors Using Python*. O'Reilly Media, 2020

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	2	3
CO3	3	2	3	2	2	3	2	3	3	3	3
CO4	3	2	2	1	2	3	2	3	3	2	2

CO5	3	3	2	3	3	2	3	3	3	1	3
Total	15	12	13	12	13	14	13	15	15	12	14
Average	3	2.4	2.6	2.4	2.6	2.8	2.6	3	3	2.4	2.8

3 – Strong, 2- Medium, 1- Low

SEMESTER- II

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT24	**Wealth Tech and Investment Platforms**	**Core**	**4**	**0**	**0**		**4**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To Understand the basic concepts of Wealth Tech
LO2	To understand Financial Planning and Ways for investment
LO3	To analyse the contribution of FinTech in Wealth Management
LO4	To evaluate the different digital investment Platforms
LO5	To focus on the future of wealth Tech

Unit	Content	Hours
1	**Foundations of Wealth Tech** Introduction to Wealth Tech- Categories - Business models - Emerging Trends- Introduction to capital market Investment- Importance of Investment	12
2	**Financial Planning** Financial Planning to wealth management, Tools for Financial Planning- Planning with Personal Financial Statements- Time Value for Money, Understanding different asset classes, Equity Stocks, Debts, Insurance, Real estate, Alternate investments.	12
3	**FinTech in Wealth Management** Introduction to Wealth Management & Digital Transformation- Drivers of Wealth Tech Growth (AI, Cloud, APIs, Blockchain)-Key Stakeholders: Asset Managers, Startups, Regulators, Investors - Comparative Study: Traditional vs Digital Wealth Services. Benefit of Fintech in Wealth Management.	12

4	**Digital Investment Platforms** Online Brokerage and Discount Trading Apps (Zerodha, Robinhood, Groww) – Mutual Fund and ETF Investment Platforms – Global vs Regional Platforms – Features and Differentiation – Business and Revenue Models of Digital Investment Platforms.	12
5	**Emerging Trends and Future of Wealth Tech** ESG (Environmental, Social and Governance) Investing – Hybrid Advisory Models (Human + Robo-Advisors) – API-led Open Wealth Ecosystem – Cross-border Wealth Tech Innovations – Career Opportunities and Skills in Wealth Tech.	12

CO	Course Outcomes
CO1	Understand the basic concepts of Wealth Tech
CO2	Understand Financial Planning and Ways for investment
CO3	Analyse the contribution of FinTech in Wealth Management
CO4	Evaluate the different digital investment Platforms
CO5	Focus on the future of wealth Tech

Textbooks:	
1	The WealthTech Book - The FinTech Handbook for Investors, Entrepreneurs and Finance Visionaries Paperback – 23 July 2018 by Susanne Chishti (Editor), Thomas Puschmann (Editor)
2	WealthTech: Wealth and Asset Management in the Fintech Management – Patrik Schueffel- Information Age Publishing House
Reference Books:	
1	Wealth and Asset Management in the FinTech Age 2019, Emerald Publishing Limited

Web Resources

1	8. WealthTech.pdf
2	The Impact of WealthTech in Finance: 10 Benefits and Use Cases
3	https://www.google.co.in/books/edition/WealthTech/JBXFDwAAQBAJ?hl=en&gbpv=1&dq=WealthTech%3A%20Wealth%20and%20Asset%20Management%20in%20the%20FinTech%20Age&pg=PR4&printsec=frontcover

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	2	3
CO3	3	2	3	2	2	3	2	3	3	3	3
CO4	3	2	2	1	2	3	2	3	3	2	2
CO5	3	3	2	3	3	2	3	3	3	1	3
Total	15	12	13	12	13	14	13	15	15	12	14
Average	3	2.4	2.6	2.4	2.6	2.8	2.6	3	3	2.4	2.8

3 – Strong, 2- Medium, 1- Low

SEMESTER II

PYTHON PROGRAMMING LAB

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
DFT21P	**Python Programming Lab**	**CC**	**-**	**-**	**4**	**-**	**2**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To impart practical knowledge of Python programming for financial applications.
LO2	To enable students to analyse and visualize real fintech datasets.
LO3	To introduce data analytics workflows (import, clean, analyse, model, visualize).
LO4	To strengthen skills in applying analytics to payments, banking, and fraud detection cases.
LO5	To implement regression and classification models for fintech use cases.

List of the Programs	**Hours**
1. **Financial Calculator** – Write Python programs for simple/compound interest, loan EMI, and annuity calculations.	**60**
2. **Transaction Classification** – Apply conditional logic to categorize transactions (e.g., debit, credit, suspicious).	
3. **Customer Data Handling** – Use lists and dictionaries to maintain customer KYC/transaction information.	
4. **File Operations** – Import/export financial datasets (CSV/Excel) such as bank statements or UPI logs.	
5. **NumPy for Finance** – Compute portfolio return, volatility, and risk measures.	
6. **Pandas for Data Wrangling** – Clean and manipulate a credit card transactions dataset.	
7. **EDA & Visualization** – Plot UPI transaction growth, stock market trends, and fraud detection charts using matplotlib/seaborn.	
8. **Time Series Analysis** – Perform trend analysis on stock prices or cryptocurrency datasets.	
9. **Regression for Prediction** – Build a simple linear regression model to predict credit scores or loan defaults.	
10. **Classification for Fraud Detection** – Apply logistic regression or decision trees to detect fraudulent transactions.	

CO	Course Outcomes
CO1	Apply Python programming to financial problem solving.
CO2	Import, preprocess, and manage fintech datasets.
CO3	Perform data analytics using NumPy, Pandas, and visualization libraries.
CO4	Analyse time series and transactional data in fintech.
CO5	Implement regression and classification models for fintech use cases.

Textbooks:	
1	Wes McKinney, "Python for Data Analysis", 2nd Edition, O'Reilly publication, USA.
2	Reema Thareja – "Python Programming: Using Problem Solving Approach", Oxford University Press, 2017.
3	Allen B. Downey – Think Python: How to Think Like a Computer Scientist, O'Reilly, 2nd Ed., 2015.
Reference Books:	
1	Eryk Lewinson – Python for Finance Cookbook (Packt Publishing, 2020).
2	Andreas C. Müller & Sarah Guido – Introduction to Machine Learning with Python (O'Reilly, 2016).
Web resources:	
1	NumPy Documentation
2	pandas documentation — pandas 2.3.3 documentation
3	Examples — Matplotlib 3.10.6 documentation

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	3	3	2	3	3	3	2	2
CO2	3	2	2	2	2	2	2	2	3	2	3
CO3	3	2	3	3	3	2	3	3	3	2	2
CO4	3	2	2	2	2	2	2	2	3	2	2
CO5	3	2	3	3	2	2	3	3	3	2	3
TOTAL	14	10	13	13	13	10	13	13	15	10	12
AVERAGE	2.8	2	2.6	2.6	2.6	2	2.6	2.6	3	2	2.4

3 – Strong, 2- Medium, 1- Low