



**GURU KASHI  
UNIVERSITY**  
PUNJAB - INDIA

Post Graduate Diploma in Financial Technology (PGDFT 2024)

# **GURU KASHI UNIVERSITY**



**POST GRADUATE DIPLOMA IN FINANCIAL  
TECHNOLOGY (FINANCIAL TECHNOLOGY)**

**SESSION: 2024-25**

**DEPARTMENT OF MANAGEMENT**

### **Graduate Attributes:**

Graduates of the PG Diploma in Finance and Technology (Financial Technology) program emerge with a multifaceted skill set that combines a deep understanding of financial principles with cutting-edge technological expertise. Equipped with sharp critical thinking skills, they excel in analyzing and solving complex problems, while their effective communication abilities enable them to articulate intricate financial concepts with clarity. Thriving in collaborative environments, they demonstrate strong teamwork aptitude and possess a knack for navigating diverse group dynamics. Moreover, they exhibit a commitment to ethical decision-making, essential for addressing moral challenges within the finance and technology sectors, and showcase adept problem-solving capabilities to tackle organizational issues. With a natural inclination towards leadership, they inspire and guide teams towards strategic objectives, all while maintaining an entrepreneurial mindset to identify and seize emerging opportunities in the ever-evolving Financial Technology landscape. Grounded in a global perspective, they are well-equipped to operate within the complexities of today's diverse marketplace.

**PROGRAM LEARNING OUTCOMES:** After completion of the program, the student will be able to:

1. Graduates will critically evaluate complex financial data and technological innovations, identifying opportunities and risks in the Financial Technology landscape.
2. Students will apply quantitative methods and computational techniques to solve intricate financial problems, leveraging Financial Technology tools and platforms effectively.
3. Graduates will navigate the ethical implications of Financial Technology applications, ensuring compliance and integrity in financial practices.
4. They will integrate advanced financial concepts with emerging technologies to make informed strategic decisions, fostering innovation and competitive advantage in financial services.
5. Students will develop creative solutions, addressing industry challenges and enhancing financial services through novel Financial Technology applications.
6. Graduates will refine collaborative leadership skills, effectively leading and contributing to diverse Financial Technology initiatives, and driving organizational success through teamwork and synergy.



**Program Structure (PG Diploma in Financial Technology)**

**Semester: 1<sup>st</sup>**

<b>Course Code</b>	<b>Course Title</b>	<b>Type of Course</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total Credits</b>
<b>GFN101</b>	Introduction to Financial Technology	Core	4	0	0	4
<b>GFN102</b>	Global Financial Markets	Core	4	0	0	4
<b>GFN103</b>	Quantitative Analysis	Core	4	0	0	4
<b>GFN104</b>	Foundations of Finance and Accounting	Compulsory	2	0	0	2
<b>GFN105</b>	Minor Project	Skill Based	-	-	4	2
<b>GFN106</b>	Entrepreneurship in Financial Technology	VAC	2	0	0	2
<b>GFN199</b>	XXX	MOOC				2
<b>Discipline Elective-I (Any One)</b>						
<b>GFN107</b>	Financial Technology in Wealth Management	Disciplinary Elective I	3	0	0	3
<b>GFN108</b>	Fundamental and Technical Analysis		3	0	0	
<b>GFN109</b>	Big Data Technology and Application		2	0	0	
<b>GFN114</b>	Big Data Technology and Application(Lab)		0	0	2	
<b>Discipline Elective-II (Any One)</b>						
<b>GFN110</b>	Financial Technology Risk Management	Disciplinary Elective II	3	0	0	3
<b>GFN111</b>	Financial Technology Security and Regulation		3	0	0	
<b>GFN115</b>	Artificial Intelligence in Finance		2	0	0	
<b>GFN116</b>	Artificial Intelligence in Finance(Lab)		0	0	2	
<b>Total</b>						<b>27</b>
<b>Semester: 2<sup>nd</sup></b>						



Course Code	Course Title	Type of Course	L	T	P	Total Credits
<b>GFN201</b>	Current Trends in Financial Technology	Core	4	0	0	4
<b>GFN202</b>	Financial Technology Innovations, Applications & Considerations	Core	4	0	0	4
<b>GFN203</b>	Financial Modeling using Excel	Foundation	3	0	0	3
<b>GFN204</b>	Role of Financial Technology in Financial Markets	Ability Enhancement Course	2	0	0	2
<b>GFN205</b>	Major Project	Skill Based	-	-	8	4
<b>Discipline Elective-III (Any One)</b>						
<b>GFN206</b>	Blockchain Technology and Applications	Disciplinary Elective III	2	0	0	3
<b>GFN212</b>	Blockchain Technology and Applications(Lab)		0	0	2	
<b>GFN207</b>	International Political Analysis		3	0	0	
<b>GFN208</b>	Technology Disruption in Financial Technology		3	0	0	
<b>Discipline Elective-IV (Any One)</b>						
<b>GFN209</b>	Electronic Payment System	Disciplinary Elective IV	3	0	0	3
<b>GFN210</b>	Security and Privacy in Cyber System		2	0	0	
<b>GFN215</b>	Security and Privacy in Cyber System(Lab)		0	0	2	
<b>GFN211</b>	Stock Market Operations		3	0	0	
<b>Total</b>						<b>23</b>



**EVALUATION CRITERIA FOR THEORY COURSES**

A. Continuous Assessment: [25 Marks]

- i. CA1: Surprise Test (Two best out of three) (10 Marks)
- ii. CA2: Assignment(s) (10 Marks)
- iii. CA3: Portfolio (5 Marks)

B. Attendance: [5 marks]

C. Mid Semester Test: [30 Marks]

D. End-Term Exam: [40 Marks]

**Evaluation Criteria for other courses have been given separately with respective courses**

**Semester-I**

**Course Title: Introduction to Financial Technology**

**Course Code: GFN101**

L	T	P	Cr.
4	0	0	04

**Total Hours: 60**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Critically assess the impact of Financial Technology innovations on financial systems.
2. Synthesize financial theories with technological applications.
3. Utilize quantitative methods and computational tools for financial analysis.
4. Critically reflect on ethical and regulatory considerations in Financial Technology.

**Course Content**

**Unit 1**

**14 Hours**

Financial Technology: Introduction– Financial Technology Evolution: Infrastructure, Collaboration between Financial Institutions and Start-ups – Financial Technology Typology – Emerging Economics: Opportunities and Challenges – Introduction to Regulation Industry

**Unit 2**

**16 Hours**

Data & Tech – Introduction– Data in Financial Services –Application of Data Analytics in Finance – Methods of Data Protection – How AI is Transforming the Future of Financial Technology –Digital Identity – Change in Mindset: Regulation 1.0 to 2.0 (KYC to KYD) – AI & Governance – New Challenges of AI and Machine Learning – Challenges of Data Regulation

### **Unit 3**

**15 Hours**

Digital Finance and Alternative Finance -Introduction – Brief History of Financial Innovation – Digitization of Financial Services – Financial Technology & Funds- Crowdfunding– Regards, Charity and Equity – P2P and Marketplace Lending – New Models and New Products – ICO

### **Unit 4**

**15 Hours**

Financial Technology Regulation and RegTech -Introduction – Financial Technology Regulations Evolution of RegTech – RegTech Ecosystem: Financial Institutions – RegTech Ecosystem Ensuring Compliance from the Start: Suitability and Funds – RegTech Startups: Challenges –RegTech Ecosystem: Regulators Industry –Use Redesigning Better Financial Infrastructure

### **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom.

### **Suggested Text Books**

- Ethereum: Blockchains, Digital Assets, Smart Contracts, Decentralized Autonomous Organizations by Henning Diedrich, CreateSpace Independent Publishing Platform, ISBN-13: 978-1523930470.
- Blockchain Applications: A Hands-on Approach. by Arshdeep Bahga and Vijay Madisetti, Vpt, ISBN-13: 978-0996025560.
- Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction by Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, Steven Goldfeder, Princeton University Press, ISBN-13: 978-0691171692.
- An Introduction to Statistical Learning: with Applications in R (Springer Texts in Statistics) by Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, Springer, ISBN-13: 978-1461471370.

### **Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- <https://www.my-mooc.com/en/mooc/introduction-to-Financial-Technology/>
- <https://www.edx.org/course/introduction-to-Financial-Technology>
- <https://ocw.mit.edu/courses/sloan-school-of-management/15-s08-Financial-Technology-shaping-the-financial-world-spring2020/syllabus/>

**Course Title: Global Financial Market**

**Course Code: GFN102**

L	T	P	Cr.
4	0	0	04

**Total Hours: 60**

### **Learning Outcomes**

On the completion of the course, the students will be able to

1. Analyze Global Financial Systems: Critically assess the structure and dynamics of global financial markets.
2. Synthesize Financial Instruments: Integrate knowledge of diverse financial instruments to evaluate investment strategies.
3. Apply Quantitative Methods: Utilize quantitative tools for financial analysis and portfolio management.
4. Evaluate Ethical and Sustainable Practices: Assess ethical and sustainable implications of financial decisions in a global context.

### **Course Content**

#### **Unit 1: Introduction to Global Financial Markets**

**14 Hours**

Fundamentals of global financial markets and their significance in the context of the global economy, types of financial markets, including money markets, capital markets, forex markets, and derivatives markets.

#### **Unit 2: Financial Market Instruments**

**16**

#### **Hours**

Financial instruments traded in global markets. Foreign exchange markets, including exchange rate determination, currency pairs, and various trading mechanisms. Derivative instruments such as futures, options, and swaps, highlight their uses and associated risks.

#### **Unit 3: Global Market Structures and Regulations**

**15**

#### **Hours**

Overview of the structures and regulations governing global financial markets. Financial market structures, including exchanges, over-the-counter markets, and electronic trading platforms. Roles of regulatory bodies such as the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and international organizations.

#### **Unit 4: Global Financial Market Dynamics**

**15**

#### **Hours**

Understanding the dynamics of global financial markets, Market trends, and factors influencing financial markets, including economic indicators, geopolitical events, and technological advancements. Emerging trends and the future outlook for global financial markets.



### Transaction Mode

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- [Courses: NPTEL](#)
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))

### Suggested Textbooks:

- International Finance by Rajiv Srivastav, Oxford University Press
- International Financial Management by P.G. Apte 2010 Ed.
- International Financial Management by Vyuptakesh Sharan
- International Financial Management by S.P. Srinivasan
- International Finance by Mauric Levi, Keith P. (2013 Edition)
- Foreign Exchange, International Finance, Risk Management by A.V. Rajwade
- Currency Exposures and Derivatives by A.V Rajwade

### Suggested Reference Book:

- International Finance, by Maurice Levi, 5th edition, Mc Graw Hill
- International Financial Management by Jeff Madura; 2008, Cengage Learning
- International Financial Management by Eun and Resnick, 4th edition Tata McGraw Hill
- International Economics by Carbaugh 11th Edition, Cengage Learning.
- Paul R Krugman and Maurice Obstfeld, 'International Economics', 8th edition
- Multinational Financial Management by Alan Shapiro, 9th Ed, Wiley

**Course Title: Quantitative Analysis**

**Course Code: GFN103**

L	T	P	Cr.
4	0	0	04

**Total Hours: 60**

### Learning Outcomes

On the completion of the course, the students will be able to

1. Develop proficiency in constructing and interpreting complex mathematical models for data analysis.
2. Apply quantitative techniques to inform strategic decisions and optimize outcomes in various domains.
3. Utilize quantitative methods to assess and mitigate risks across financial and business contexts.





4. Generate actionable insights by leveraging quantitative analysis to forecast trends and anticipate future outcomes.

## **Course Content**

### **Unit 1**

**15 Hours**

Introduction to Statistics, Statistics in Business, Charts and Graphs. Descriptive Statistics, Measure of central tendency, measure of variability, for Group and ungrouped data, Measures of shape, measures of association. Permutations and Combinations; Introduction to probability, Structure of probability, Results of probability, Revision of probability: BAYES' RULE, and examples Random variable and probability distribution: Discrete and Continuous distribution, Expected value and variance of a distribution.

### **Unit 2**

**15 Hours**

Distribution and Sampling Discrete Distributions: Uniform distribution, Hyper Geometric distribution, Binomial distribution, Poisson distribution and their relationship, Continuous Distributions: Uniform distribution, Normal distribution, Exponential distribution; Sampling and sampling Distributions

### **Unit 3**

**14 Hours**

Inferences and Hypothesis Formation Statistical Inference: Estimation for Single and Two Populations; Hypothesis Testing for Single Populations Mean, Proportion and Variance; Hypothesis Testing for Two Populations-Mean, Proportion and Variance

### **Unit 4**

**16 Hours**

Hypothesis Testing and Regression Analysis of Variance (Only one way), Hypothesis Testing for categorical data (chi-square test); Simple Linear Regression Analysis -introduction, Determining the equation of a regression line, measure of variation, using the residual analysis to test the assumptions of Regression, measuring Auto correlation - The Durbin Watson statistic, Testing of the Overall Model. Software Uses Use of any software (EXCEL, Minitab, SPSS, etc.)

## **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

## **Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [Courses: NPTEL](#)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)

## **Books Recommended:**



1. Ken Black, Business Statistics for Contemporary Decision Making, Wiley, Fourth or later Edition
2. Richard I. Levin and David S. Rubin, Statistics for Management, Pearson Education, 6th Edition or later Edition
3. Anderson, Sweeney, Williams, Statistics for Business and Economics, Cengage Learning, Latest edition.

**Course Title: Foundation of Finance and Accounting**  
**Course Code: GFN104**

L	T	P	Cr.
2	0	0	02

**Total Hours: 30**

### **Learning Outcomes**

On the completion of the course, the students will be able to

1. Analyze Financial Statements: Critically evaluate financial statements to assess the financial health and performance of organizations.
2. Apply Financial Concepts: Synthesize financial theories and principles to analyze investment decisions, capital budgeting, and financial strategies.
3. Utilize Accounting Principles: Proficiently apply accounting principles and practices to record, analyze, and interpret financial data for decision-making purposes.
4. Evaluate Ethical and Regulatory Considerations: Assess ethical and regulatory implications in financial reporting and decision-making, demonstrating a commitment to responsible financial practices.

### **Course Content**

#### **Unit 1: Fundamentals of Financial Accounting**

**7 Hours**

Financial Statements: Balance sheet, Income Statement, Cash Flow Statement. Reading financial statements and Financial Statement Analysis. Financial Ratios for analysis. Introduction to Cost Accounting: Conceptual basis, Cost behavior, Cost classification

#### **Unit 2: Cost Accounting Techniques**

**8 Hours**

Elements of cost and preparation of cost statement. Direct & Indirect cost, Cost Classification. Overhead allocation/absorption: Traditional Method, Primary and Secondary Distribution. Activity Based Costing (ABC)

#### **Unit 3: Cost-Volume-Profit Analysis and Budgeting**

**7 Hours**

Cost-Volume-Profit Analysis: Contribution Margin, Break-Even Point, Marginal Costing. Operating Leverage and Decision Making Using Marginal Costing. Performance Evaluation through Budgeting: Flexible Budget, Production Budget, Sales Budget, Master Budget. Variance Analysis

#### **Unit 4: Corporate Finance and Investment Valuation**

**8 Hours**



Introduction to Corporate Finance and Time Value of Money. Discounted Cash Flows and Valuing Bonds. Valuation of Stocks as Investments. Valuing Projects: NPV, IRR, and Risk Analysis; Risk, Return, and the Capital Asset Pricing Model (CAPM)

**Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

**Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [https://onlinecourses.nptel.ac.in/noc24\\_ec01/preview](https://onlinecourses.nptel.ac.in/noc24_ec01/preview)
- [https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp\\_content/Business Economics/04. Principles of business finance and accounting/01. Introduction to Accounting/et/6221\\_et\\_BSE\\_P4\\_M1\\_etext.pdf](https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/Business Economics/04. Principles of business finance and accounting/01. Introduction to Accounting/et/6221_et_BSE_P4_M1_etext.pdf)

**Suggested Text Books:**

- Management Accounting, Khan and Jain, Tata McGraw Hill
- Fundamentals of Management Accounting, H. V.Jhamb
- Managerial Accounting, Dr. Mahesh Abale and Dr. Shriprakash Soni
- Financial Management, Shashi K. Gupta and R.K. Sharma (Kalyani Publication)
- Basics of Financial Management, V.K. Saxena and C.D.Vashist (Sultan Chand & Sons)
- Financial Management, A Contemporary Approach, Rajesh Kothari (SAGE)
- Financial Management, Dr. Mahesh Abale & Dr. Shriprakash Soni (Himalaya Publishing House Pvt. Ltd.)
- Working Capital Management, Theory and Practice, Dr. P. Periasamy (Himalaya Publishing House)
- Financial Management, I M Pandey (Vikas Publishing House Pvt. Ltd)

**Suggested Reference Books:**

- Financial Management, Rajiv Srivastava and Anil Misra (OXFORD University Press)
- Financial Management, Ravi Kishore (Taxmann)
- Financial management, V.K. Bhalla (S. Chand)
- Financial Management, Jonathan Berk, Peter DeMarzo and Ashok Thampy (Pearson Publication)



**Course Title: Minor Project Work**

**Course Code: GFN105**

L	T	P	Cr.
-	-	4	02

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Demonstrate effective project management skills, including planning, organization, and execution.
2. Apply theoretical knowledge to practical scenarios, fostering critical thinking and problem-solving abilities.
3. Collaborate with peers to achieve project goals, enhancing communication and teamwork skills.
4. Present project findings and outcomes clearly and professionally, developing oral and written communication skills.

**Course Content**

The Minor Project course is designed to provide students with hands-on experience working in a professional environment, allowing them to apply their knowledge and skills to real-world situations. Through this program, students shall get the opportunity to work with experienced professionals and gain exposure to various industries, developing their communication, time management, and teamwork skills.

**Transaction Mode**

Peer Demonstration, Field Visit, Role Play, Apprenticeship

**Course Title: Entrepreneurship in Financial Technology**

**Course Code: GFN106**

L	T	P	Cr.
2	0	0	02

**Total Hours: 30**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Develop innovative Financial Technology solutions through entrepreneurial thinking.
2. Strategize business growth by analyzing market dynamics.
3. Implement agile methodologies for rapid product development.
4. Navigate regulatory complexities for ethical and compliant operations.

**Course Content**

**Unit 1**

**7 Hours**

Foundations of Entrepreneurship: features - Entrepreneur’s competencies, attitude, qualities, and functions. Entrepreneurial scenario in India and Abroad. Small Business, Importance in Indian Economy.

**Unit 2**

**6 Hours**

Startups in the Emerging market: Emerging market - definition, concept and features. India’s start-up revolution– Trends, Imperatives, benefits.



**Unit 3**

**8 Hours**

Entrepreneurial Strategy: Generation of new business opportunities, Decisions under Uncertainty, entry strategy, environmental instability - Risk Reduction strategies, Market scope strategy- Imitation strategies.

**Unit 4**

**9 Hours**

Creating a New Business Model by using Financial Technology applications: Subsectors where startups are either seeking to displace serving or sell them their services: Bitcoin/Ethereum (and ICOs).

**Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

**Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [Courses :: NPTEL](#)
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))

**Suggested Reference Books:**

- Meyer, M. H., & Crane, F. G. (2010). Entrepreneurship: An innovator's guide to startups and corporate ventures. SAGE Publications.
- Lerner, Josh, Ann Leamon, and Felda Hardyman. Venture Capital, Private Equity, and the Financing of Entrepreneurship. New York: John Wiley & Sons, 2012.
- Sironi, Paolo. Financial Technology Innovation: From Robo-Advisors to Goal Based Investing and Gamification (The Wiley Finance Series), Wiley, 2016.
- Ries, E. (2011). The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses. Random House LLC.
- Innovation and Entrepreneurship, Peter F. Drucker.

**Course Title: Financial Technology in Wealth Management**

**Course Code: GFN107**

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Master the use of Financial Technology tools to personalize wealth management strategies for clients.



2. Utilize advanced analytics to make informed decisions and optimize investment strategies.
3. Navigate complex regulatory frameworks to ensure compliance while implementing Financial Technology solutions in wealth management.
4. Innovate client engagement strategies using Financial Technology platforms to enhance customer experience and satisfaction.

## Course Contents

### UNIT-I

**8 Hours**

Introduction: Financial Planning: Background, Role of Financial Planner, Financial, Planning Process, Client Data Collection, Client Data Analysis, Life Cycle, Wealth Cycle, Risk Profiling and Asset Allocation.

### UNIT-II

**13 Hours**

Financial Plan, Goal-based Financial Plan, Comprehensive Financial Plan, Financial Blood-Test Report (FBR), Financial Planning in India.

Derivatives: -Futures, Options. Mutual Fund. Venture Capital / Private Equity Funds. Hedge Funds, Structured Products, Portfolio Management Services (PMS). Risk-Return Framework, Risk-Standard Deviation, Beta.

### UNIT-III

**14 Hours**

Role of Equity, Active and Passive Exposures, Returns from Passive, Exposure to S&P, CNX Nifty, Sector Exposure and Diversification, Fundamental and Technical Analysis, Interest Rate Risk, Interest Rate and Debt Investments, Credit Exposure and Debt Investments, Concentration Risk, Passive Investments in Debt. Role of Gold, Gold Investment Routes, Rupee Returns from Gold. Real Estate: -Role of Real Estate, Real Estate Investment Routes, Real Estate Indices

### UNIT-IV

**10 Hours**

Risk Profiling, Strategic Asset Allocation, Tactical Asset, Allocation, Fixed Asset Allocation, Flexible Asset Allocation, Asset Allocation Returns in Equity and Debt: - Fixed Asset Allocation with Annual Re-balancing, Flexible Asset Allocation, Asset Allocation Returns in Equity, Debt, and Gold: -Fixed Asset Allocation with Annual

## Transaction Mode

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

## Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

- [Courses:: NPTEL](#)
- [e-PGPathshala \(inflibnet.ac.in\)](#)
- [e-PGPathshala \(inflibnet.ac.in\)](#)

## Suggested Text Books:



- Basics of Personal Financial Planning Insurance Education Series by NIA, K C Mishra, Steward Doss, Cengage Delmar Learning India Pvt. Ltd. Suggested Reference Books:
- Introduction to Financial Planning, Indian Institute of Banking & Finance
- Personal Financial Planning Theory and Practice, Kaplan Schweser
- Personal Finance, E. Thomas Gorman and Raymond E. Fogue, Southwest-Western Cengage Learning.
- Fundamentals of Financial Planning, Michael Dalton, Joesph Gillice, James Dalton and Thomas Langdon, Money Education
- Personal Financial Planning, Benedict Koh Wai Mun Fong, Pearson
- Personal Financial Planning, Lawrence J. Gitman , Michael D.Joehnk, Cengage NOW

**Course Title: Fundamental and Technical Analysis**  
**Course Code: GFN108**

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

### Learning Outcomes

On the completion of the course, the students will be able to

1. Understanding various parameters, charts, and theories of Fundamental & Technical Analysis and Investment psychology
2. Applying to make practical use of Financial Statement Analysis, Various Ratios, Theories, and Charts of Fundamental & Technical Analysis.
3. Analyse and forecast the expected Market Price of securities to take and execute Investment Decisions.
4. Evaluating an Ideal Portfolio of Investment using Fundamental & Technical Analysis.
5. Creating filters for identifying prospective scrips using ICTs.

### Course Content

#### Unit 1

**12 Hours**

Introduction to Fundamental Analysis: Meaning- Definition-Types of Fundamental Analysis – Role of Fundamental Analysis – Basic Concepts- Time Value- Inflation – Interest rates- Opportunity Cost- Risk & Return – Equity Risk Premium- Beta – Risk-adjusted Return – Different Analysis – Economic Analysis- Industry Analysis- Company Analysis- Qualitative & Quantitative

#### Unit 2

**12 Hours**

Understanding Financial Statements: Director’s Report- Auditor’s Report- Financial Statements- Income Statement – Balance Sheet – Schedule and Notes to Balance Sheet – Cash Flow Statement-Comparative and Common



Size Statements –Financial Ratios – Du-Pont Analysis – Important Points while looking at Financials – Peer Comparison – Management analysis- Corporate Governance

**Unit 3**

**11 Hours**

Introduction to Technical Analysis – Definition and Concept - Price Discount and Price Movements - Assumptions in Technical Analysis – Strength and Weakness of Technical Analysis – Trading Strategies – Dow Theory - Trading Psychology and Risk Management-

**Unit 4**

**10 Hours**

Company Analysis Using Technical Analysis – Understanding of Various Charts – Bullish trend – Bearish Trend – Price Chart – Line Chart – Bar Chart – Candle Chart – Point and Figure Chart – Candle Stick Pattern - -One Candle Pattern – Two candle Pattern – Three Candle Pattern – Pattern study with examples – Support – resistance – Head & Shoulders – Double Top & Double Bottom – Gap Theory – Major Indicators & Oscillators -.

**Transaction Mode**

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**Suggested Text Books**

- Securities Analysis (Benjamin Graham, David L Dodd, McGraw Hill Education, 6th edition)
- Investment Analysis And Portfolio Management ( Prasanna Chandra, McGraw Hill Education, Fifth Edition)
- Fundamental Analysis For Dummies (Matt Krantz, For Dummies, 2nd Edition)
- Investment Management ( V.K.Bhalla, S.Chand, 19th Revised Edition) NSE Work Book- ( NSE Academy)
- Technical Analysis of Financial Market: A comprehensive guide to trading methods & applications (John J. Murphy, New York Institute of Finance, Penguin Group, First Edition)
- Technical Analysis Explained: The successful Investor’s Guide to Spotting (Martin J. Pring, McGraw Hill Education, Fifth Edition)

**Suggested Reference Books:** The Intelligent Investor (Benjamin Graham, Harper Business 2011th Edition)

**Course Title: Big Data Technology and Application**

**Course Code: GFN109**

L	T	P	Cr.
2	0	0	02

**Total Hours: 30**

**Learning Outcomes**

On the completion of the course, the students will be able to





1. Master techniques to extract valuable insights from large data sets for informed decision-making.
2. Develop architectures capable of handling massive volumes of data to support business growth.
3. Apply cutting-edge analytics methods to uncover trends and patterns for strategic advantage.
4. Implement solutions for processing and analyzing data streams in real-time to enable agile responses.

## Course Content

### Unit 1

**06 Hours**

**Introduction to Big Data:** Big Data Overview: Background of Data Analytics, Role of Distributed. System in Big Data. Role of Data Scientist. Current Trend in Big Data Analytics

### Unit 2

**08 Hours**

**Google File System:** Architecture, Availability, Fault Tolerance, and Optimization for large scale data

**NoSQL:** Structured and Unstructured Data. Taxonomy of NoSQL Implementation. Discussion of the basic architecture of HBase, Cassandra, and MongoDB

### Unit 3

**08 Hours**

**Map-Reduce Framework:** Basics of functional programming, Fundamentals of functional programming, Real-world problems modeling in functional style. Map reduce fundamentals. Data flow (Architecture), Real-world problems, Scalability goal. Optimization and data locality. Parallel Efficiency of Map-Reduce

### Unit 4

**08 Hours**

**Searching and Indexing Big Data:** Full-text Indexing and Searching. Indexing with Lucene. Distributed Searching with Elasticsearch

**Case Study:** Hadoop, Introduction to Hadoop Environment, Data Flow, Hadoop I/O, Query languages for Hadoop, Hadoop and Amazon Cloud

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### Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

- [Courses: NPTEL](#)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)

### Essential Reading / Recommended Reading



- James Evans (2016), "Business Analytics" Pearson Publishers, 2nd Edition
- Jiawei Han and Micheline Kamber (2015), "Data Mining: Concepts and Techniques", Morgan Kaufmann Publication
- Kimball, R. and Ross, M (2006), "The Data Warehouse Toolkit: The Complete Guide to Dimensional Modelling", John Wiley & Sons
- Kimball, R., and Caserta, J (2004), "The Data Warehouse ETL Toolkit: Practical Techniques for Extracting, Cleaning, Conforming, and Delivering Data", John Wiley & Sons
- Turban E, Armson, JE, Liang, TP & Sharda (2007), "Decision support and Business Intelligence Systems", 8th Edition, John Wiley & Sons
- Michael J. A. Berry and Gordon S. Linoff (2004), "Data Mining Techniques for marketing, Sales and CRM", John Wiley & Sons

**References**

1. Jeffrey Dean, Sanjay Ghemawat MapReduce: Simplified Data Processing on Large Clusters
2. Sanjay Ghemawat, Howard Gobioff, and Shun-Tak Leung the Google File System
3. <http://wiki.apache.org/hadoop/>

**Course Title: Big Data Technology and Application (Lab)**

**Course Code: GFN114**

L	T	P	Cr.
0	0	2	01

**Learning Outcomes**

**Total Hours: 30**

On the completion of the course, the students will be able to

1. Understand the core principles and technologies of big data systems.
2. Develop skills in using tools and frameworks for processing large datasets.
3. Learn to analyze and visualize big data to extract meaningful insights.
4. Apply big data technologies to solve real-world problems and case studies.

**Course Content**

This lab-based course offers a hands-on introduction to big data technologies and their applications. Students will explore the fundamental principles of big data systems, learn data processing techniques using tools like Hadoop and Spark, and develop skills in data analysis and visualization. By engaging with real-world problems and case studies, students will gain practical experience in applying big data solutions to derive meaningful insights and drive decision-making in various professional contexts. This course is designed to equip students with the essential skills needed to excel in the rapidly evolving field of big data.



**References**

- Dean, J., & Ghemawat, S. (2008). *MapReduce: Simplified Data Processing on Large Clusters*. Communications of the ACM, 51(1), 107-113.
- Gupta, M., & Shukla, V. (2019). *Practical Big Data Analytics: Hands-On Techniques to Implement Enterprise Analytics and Machine Learning Using Hadoop, Spark, NoSQL and R*. Packt Publishing.
- Marz, N., & Warren, J. (2015). *Big Data: Principles and Best Practices of Scalable Real-Time Data Systems*. Manning Publications.
- Minelli, M., Chambers, M., & Dhiraj, A. (2013). *Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses*. Wiley.
- Rajaraman, A., & Ullman, J. D. (2012). *Mining of Massive Datasets*. Cambridge University Press.
- White, T. (2015). *Hadoop: The Definitive Guide*. O'Reilly Media.
- Zikopoulos, P. C., Eaton, C., deRoos, D., Deutsch, T., & Lapis, G. (2012). *Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data*. McGraw-Hill Osborne Media.

**Course Title: Financial Technology Risk Management**  
**Course Code: GFN110**

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Recognize and anticipate emerging risks within Financial Technology ecosystems to proactively mitigate potential threats.
2. Utilize advanced risk assessment frameworks to evaluate and manage risks associated with Financial Technology innovations and operations.
3. Integrate regulatory compliance measures into Financial Technology risk management strategies to ensure adherence to industry standards and legal requirements.
4. Assess the impact of Financial Technology activities on overall financial stability and market resilience to mitigate systemic risks effectively.

**Course Content**

**Unit1**

**12 Hours**

Basics of Risk Management: Definitions of risk, Types of risks, Risk description, Inherent level of risk, Impact of risk on organizations, Impact of hazard risks, Risk and uncertainty, Principles of risk management, Importance of risk management, Risk management process, and Risk management framework. Financial Risk Management: Concept, Importance, Scope, Process of Financial Risk Management.

**Unit 2**

**12 Hours**



Risk & Volatility Measurement: need for risk management, role of rate and price in determination of risk, Factors that impact financial rates and price: Interest rates, Foreign Exchange Rates, Commodity Prices, Operational Risk; Market Data Analysis, Probability and distributions of asset prices, measuring return and risk, Modeling Risk Factors, Using implied volatility in Value-at-Risk measures; Measuring risk using Value-at-Risk, concept and computation of VAR using variance-covariance approach, Calculating portfolio risk of more than one Assets.

### Unit 3

**11 Hours**

Risk Management in Banking: Concept, Risk management structure in bank, Credit risk management, liquidity risk, interest rate risk, counterparty risk, market risk, environmental risk, currency risk, legal & regulatory risk, rating risk, pricing risk & capital allocation risk, loan review, NPA management, Risk in investment banking, capital risk; Basel committee norms for banking, Financial risk management using derivatives and insurance.

### Unit 4

**10 Hours**

Risk Management for Enterprise: concept, scope, enterprise risk, approaches for corporate risk management, ERM, Types of enterprise risk: technology risk, business strategy risk, legal and regulatory risk, product liability risk. Risk Management in Insurance: Introduction, Functions & Types of Risk: Actuarial Risk, Asset liability risk, risk and capital, management of underwriting risks, investment risk, Investment management by insurers, investment risk management framework & policies.

### Transactional Mode

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

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- [Courses :: NPTEL](#)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)

### Suggested Textbooks:

- Corporate Financial and Risk Management - Nersesian, Roy L. - Jaico Publishing House
- Financial Risk Management: A Practitioner's Guide to Managing Market and Credit Risk - Steve L. Allen
- Modern Corporate Risk Management: A Blueprint for Positive Change and Effectiveness by Koller Suggested

**Reference Book:**

- Investment Science. Luenberger, Oxford University Press, 1998
- Options, Futures and other Derivatives, John Hull, 7th Edition, Prentice Hall, 2008
- An Introduction to Market Risk Measurement by Dowd, Kevin, John Wiley & Sons.
- Risk Management and Financial Institutions by Hull, John C., Pearson, Prentice Hall, 2007 Measuring Market Risk by Dowd, Kevin, John Wiley & Sons, 2005. Value at Risk by Jorion, Philippe, McGraw Hill.
- Beyond Value at Risk, by Dowd, Kevin, John Wiley & Sons Mastering Value at Risk, Butler, Cormac,
- Financial Times Prentice Hall Risk Takers, Marthinsen, John, Pearson Prentice Hall, 20096.

**Course Title: Financial Technology Security and Regulation**

L	T	P	Cr.
3	0	0	03

**Course Code: GFN111**

**Total Hours: 45**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Master Compliance: Navigate complex regulations for Financial Technology security with finesse.
2. Safeguard Against Threats: Shield Financial Technology innovations from evolving cyber risks with vigilance.
3. Fortify with Encryption: Build robust security with cutting-edge encryption techniques.
4. Global Compliance Expertise: Seamlessly manage international regulations for a borderless Financial Technology world.

**Course Content**

**Unit 1**

**12 Hours**

Introduction to Financial Technology Security & Regulation: examine the relationship between security and regulation as twin methodologies for managing and reducing risk in financial services. Issues explored will include "What is RegTech?", "What is InsurTech?", and how can we determine when regulation and security are enough or too much to achieve important social & business objectives?

**Unit 2**

**12 Hours**

Risk Management & Government Control: some of the tool's the government use to regulate financial markets and discuss potential challenges for



Financial Technology innovators in complying with these regulations. Some basic terms commonly used in finance such as AML & KYC are defined and described. We examine the role of different government agencies as well as alternative social objectives that influence the development of regulations over time.

### **Unit 3**

**11 Hours**

Fraud, Crimes, & Security: issues and challenges of preventing and detecting fraud and crime in financial markets. Topic discussed will include data theft and related security technologies, human challenges in implementing effective security, and electronic evidence & digital forensics issues. Recommendations for Financial Technology firms are provided to reduce the risk of fraud and crime.

### **Unit 4**

**10 Hours**

Global Trends and Government Initiatives in RegTech: A variety of government initiatives related to Financial Technology & RegTech. Topics included open banking APIs in Europe, crypto-currency & ICO regulations, the evolution of Financial Technology regulations in the US & Europe, China's regulations on Financial Technology, and regulatory issues in HK, Singapore & other jurisdictions.

#### **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

#### **Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- Courses: NPTEL
- e-PGPathshala (inlibnet.ac.in)
- e-PGPathshala (inlibnet.ac.in)

#### **Suggested Textbooks:**

- The Journey of Regtech by Vivek Dubey; Michael Terence Publishing
- Financial Technology Law in a Nutshell (Nutshells) 1st Edition by Chris Brummer; West Academic Publishing
- A Guide to Financial Regulation for Financial Technology Entrepreneurs 1st Edition by Stefan Loesch; Wiley
- Financial Technology: Law and Regulation (Elgar Financial Law and Practice) by Jelena Madir
- Routledge Handbook of Financial Technology and Law- Financial Technology and the limits of financial regulation by Saule T Omarova; <https://www.routledgehandbooks.com/doi/10.4324/9780429325670>
- Financial Technology Regulation: Exploring New Challenges of the Capital Markets Union by Valerio Lemma, Springer; 1st ed. 2020 edition

**Course Title: Artificial Intelligence for Finance**  
**Course Code: GFN115**

L	T	P	Cr.
2	0	0	02

**Total Hours: 30**

### Learning Outcomes

On the completion of the course, the students will be able to

1. Utilize advanced algorithms to forecast financial trends and outcomes accurately.
2. Employ machine learning models to assess and mitigate financial risks effectively.
3. Optimize investment portfolios using sophisticated machine learning techniques for enhanced returns.
4. Develop robust fraud detection systems leveraging machine learning for secure financial transactions.

### Course Content

#### Unit 1

**07 Hours**

**Statistical Review and Introduction to Python:** Gain an introduction to Python, which covers variables, functions, control structures, loops, and Pandas, and learn about probability and statistics, including statistics for finance.

**Exploratory Data Analysis (EDA) and Linear Regression:** Learn about exploratory data analysis including the univariate and bivariate models, scatterplots, histograms, and boxplots, as well as regression and regression metrics.

#### Unit 2

**10 Hours**

**Advanced Linear Regression and Building Model:** Understand how to conduct train-test splits, cross-validation, and overfitting and regularization; learn about feature engineering and selection, more specifically in terms of transforming independent and dependent variables; before delving into its application to finance, such as returns and interest rates.

**Time Series Modeling:** Define ARIMA modeling, and learn about stationarity for time series models, metrics and tests; and use the stats models package in Python to build an ARIMA model.

#### Unit 3

**07 Hours**

**Advanced Time Series, Seasonality, GARCH Model, and Backtesting:** Discover the different types of testing regimes, such as backtesting a time series-ARIMA model; simple rolling pseudo-out-of-sample backtesting; cross-validation backtesting; and back-testing for linear regression, and learn to monitor and troubleshoot models in production



## **Model Building: Classification, Clustering and Ensemble Method:**

Understand logistic regression and metrics, such as accuracy, precision and recall, and confusion matrix. Learn about ensemble methods such as bootstrap aggregation, random forests, and boosting, as well as clustering.

### **Unit 4**

**06 Hours**

**Survey for Advanced Topic:** Become familiar with cloud computing and industry leaders such as Amazon Web Services, Google, and Microsoft. Understand deep learning and neural nets, including backpropagation and keras. And, learn about Bayesian inference with a focus on frequentist statistics and PyMC3.

### **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

### **Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [Courses :: NPTEL](#)
- [e-PGPathshala \(inlibnet.ac.in\)](http://inlibnet.ac.in)
- [e-PGPathshala \(inlibnet.ac.in\)](http://inlibnet.ac.in)

### **Essential Reading / Recommended Reading**

- FSB(2017), Artificial Intelligence and machine learning in financial services, Financial Stability Board, <https://www.fsb.org/wp-content/uploads/P011117.pdf>
- WEF(2018), The new physics of financial services, [http://www3.weforum.org/docs/WEF\\_New\\_Physics\\_of\\_Financial\\_Services.pdf](http://www3.weforum.org/docs/WEF_New_Physics_of_Financial_Services.pdf)
- WEF(2020), Transforming paradigms-A global AI in financial services survey [http://www3.weforum.org/docs/WEF\\_AI\\_in\\_Financial\\_Services\\_Survey.pdf](http://www3.weforum.org/docs/WEF_AI_in_Financial_Services_Survey.pdf)
- Artificial Intelligence applications in Financial services, <https://www.oliverwyman.com/content/dam/oliverwyman/v2/publications/2019/dec/ai-app-in-fs.pdf>
- Buchanan B.G.(2019), Artificial Intelligence in Finance, Alan Turing Institute, [https://www.turing.ac.uk/sites/default/files/2019-04/artificial\\_intelligence\\_in\\_finance\\_-\\_turing\\_report\\_0.pdf](https://www.turing.ac.uk/sites/default/files/2019-04/artificial_intelligence_in_finance_-_turing_report_0.pdf)
- Artificial Intelligence in Finance, <https://sigmoidal.io/real-applications-of-ai-in-finance/>
- Patrick, Wan & Katie(2016) The evolution of analytics-Opportunities and challenges for machine learning in business. [https://www.sas.com/content/dam/SAS/en\\_us/doc/whitepaper2/evolution-of-analytics-108240.pdf](https://www.sas.com/content/dam/SAS/en_us/doc/whitepaper2/evolution-of-analytics-108240.pdf) Publisher: O’Rielly



**Course Title: Artificial Intelligence for Finance (Lab)**

**Course Code: GFN116**

L	T	P	Cr.
0	0	2	01

**Total Hours: 30**

### **Learning Outcomes**

On the completion of the course, the students will be able to

1. Understand the core principles and techniques of artificial intelligence.
2. Develop proficiency in applying machine learning algorithms to real-world datasets.
3. Learn to process and analyze human language data using NLP techniques.
4. Apply artificial intelligence technologies to solve complex problems and scenarios.

### **Course Content**

This lab-focused course introduces students to the core principles and practical applications of Artificial Intelligence (AI). Students will delve into fundamental AI concepts, explore machine learning techniques for data analysis and pattern recognition, delve into natural language processing (NLP) for text and speech data, and apply AI algorithms to real-world scenarios. Through hands-on lab sessions and projects, students will gain proficiency in leveraging AI tools and technologies to solve complex problems across diverse fields, preparing them for careers in the rapidly evolving AI landscape.

### **References**

- Bishop, C. M. (2006). *Pattern Recognition and Machine Learning*. Springer.
- Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep Learning*. MIT Press.
- Jurafsky, D., & Martin, J. H. (2019). *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition* (3rd ed.). Pearson.
- Luger, G. F., & Stubblefield, W. A. (2004). *Artificial Intelligence: Structures and Strategies for Complex Problem Solving* (6th ed.). Pearson Education.
- Mitchell, T. M. (1997). *Machine Learning*. McGraw-Hill.
- Russell, S. J., & Norvig, P. (2020). *Artificial Intelligence: A Modern Approach* (4th ed.). Pearson.
- Sutton, R. S., & Barto, A. G. (2018). *Reinforcement Learning: An Introduction*. MIT Press.



## Semester 2

**Course Title: Current Trends in Financial Technology**

**Course Code: GFN201**

L	T	P	Cr.
4	0	0	04

**Total Hours: 60**

### Learning Outcomes

On the completion of the course, the students will be able to

1. Analyze diverse Financial Technology business models, identifying their key components and competitive advantages.
2. Evaluate a range of Financial Technology products and services, discerning their applicability to various market segments and user needs.
3. Apply principles of Financial Technology product development, including market research, design, and deployment strategies, to create innovative solutions.
4. Assess regulatory frameworks and compliance requirements relevant to Financial Technology operations, ensuring ethical and legal adherence in product development and deployment.

### Course Content

#### Unit 1

**15 Hours**

Banking, Financial Services and Insurance (BFSI) & Financial Technology: Introduction to Financial Technology, Need of Financial Technology, Future of Financial Technology, Modern Banking Landscape, Dissecting Financial Services Value chain, Introduction to the Financial Technology landscape

#### Unit 2

**15 Hours**

Technology in Financial Technology: Artificial Intelligence, Machine Learning, Application Process Interface, Immediate Payment Service/Unified Payment Interface, Robotic Process Automation, Natural Language Processing, Blockchain and Cryptocurrency.

#### Unit 3

**16 Hours**

Digital Transformation: Need for business transformation, Business Process Reengineering, Digital Lending, Payment System, Block Chain.

Applications of Artificial Intelligence: Financial Technology in transformation of Banks, Insurtech, Real Estate Technology, Lending and Crowd Funding, Challenges in implementation and doing business.

#### Unit 4

**14 Hours**

Regulations: Regulatory Sandbox, Global Regulations, Domestic Regulations (As defined under various acts in India), RBI, Ombudsman Scheme for Digital Transactions, UIDAI, Various acts which govern digital transactions.

### Transaction Mode



Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

**Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [Courses :: NPTEL](#)
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))

**Learning Resources: Reference Books:**

- Bank 4.0: Banking Everywhere, Never at a Bank – Brett King
- The Financial Technology Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries – Janos Barberis
- Financial Technology in a Flash: Financial Technology Made Easy – Augustin Rubini
- Financial Technology Future: The Digital DNA of Finance – Sanjay Phadke
- The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries – Susanne Christi/Janos Barberis (Wiley, 2016)
- Machine Learning in Financial Technology 7. Financial Technology Innovation: From Robo-Advisors to Goal Based Investing and Gamification - Paolo Sironi (Wiley, 2016)

**Supplementary Reading Material:** Research Papers, White Papers, and Articles by experts.

**Course Title: Financial Technology Innovation, Application and Consideration**  
**Course Code: GFN202**

L	T	P	Cr.
4	0	0	04

**Total Hours: 60**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Assess the transformative impact of Financial Technology on traditional financial systems and formulate innovative solutions integrating emerging technologies.
2. Critically analyze the risks and opportunities associated with Financial Technology adoption, synthesizing ethical principles and regulatory requirements.
3. Design and develop novel Financial Technology products or services tailored to specific market needs, demonstrating creativity and strategic thinking.
4. Evaluate the ethical and social implications of Financial Technology innovation, and propose strategies for mitigating bias, discrimination, and financial exclusion.

**Course Content**

### **Unit 1**

**15 Hours**

Introduction to Financial Technology: Overview of Financial Technology: Definition, Evolution, and Importance. Key Technologies Driving Financial Technology Innovation: Blockchain, AI, Big Data, etc. Regulatory Landscape: Understanding the Regulatory Framework for Financial Technology Case Studies: Examining Successful Financial Technology Startups and their Impact

### **Unit 2**

**15 Hours**

Financial Technology Applications in Financial Services: Payment Systems and Digital Currencies: Understanding Cryptocurrencies, Mobile Payments, and Digital Wallets. Peer-to-Peer Lending and Crowdfunding: Exploring Alternative Financing Models. Robo-Advisors and Algorithmic Trading: The Role of AI in Investment Management. Insurtech: Innovations in Insurance Technology and Risk Management

### **Unit 3**

**15 Hours**

Financial Technology and Banking: Digital Banking Transformation: Online Banking, Mobile Banking, and Neobanks. Open Banking and APIs: Opportunities and Challenges for Traditional Banks. Cross-Border Payments and Remittances: Financial Technology Solutions for Global Transactions. Financial Inclusion: Bridging the Gap with Financial Technology Services for the Unbanked and Underbanked

### **Unit 4**

**15 Hours**

Considerations in Financial Technology Implementation: Cybersecurity and Data Privacy: Mitigating Risks in Financial Technology Systems. Ethical and Social Implications: Addressing Bias, Discrimination, and Financial Exclusion. Scalability and Integration: Challenges in Implementing Financial Technology Solutions at Scale. Future Trends and Emerging Technologies: Anticipating the Next Wave of Financial Technology Innovation

### **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

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- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)

### **Textbook and Reference Books**

- Agustin Rubini, “Financial Technology in a Flash: Financial Technology Made Easy”, Zaccheus, 3rd Edition, 2018



- Susanne Chishti and Janos Barberis, “The FINANCIAL TECHNOLOGY Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries”, John Wiley, 1st Edition, 2016
- Theo Lynn, John G. Mooney, Pierangelo Rosati, Mark Cummins, “Disrupting Finance: Financial Technology and Strategy in the 21st Century”, Palgrave, 1st edition, 2018
- Abdul Rafay, “Financial Technology as a Disruptive Technology for Financial Institutions”, IGI Global, January 2019
- Bernardo Nicoletti, The Future of Financial Technology: Integrating Finance and Technology in Financial Services, Palgrave Macmillan, August 2018

**Open Resources:** Research papers from Journals and Conferences with Open Access

**Tools/Software:** Open-Source Tools

**Course Title: Financial Modeling Using Excel**

**Course Code: GFN203**

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

### Learning Outcomes

On the completion of the course, the students will be able to

1. Analyze Data: Critically assess financial data for modeling purposes.
2. Synthesize Concepts: Integrate financial principles into Excel models.
3. Apply Excel Functions: Proficiently use Excel functions for modeling.
4. Evaluate Models: Assess model assumptions and sensitivities for decision-making.

### Course Content

#### Unit 1

**10 Hours**

**Introduction:** Meaning, Benefits, and Uses of Financial Modeling. Basic Excel for Financial Modeling: Formatting of Excel Sheets, Use of Excel Formula Function, Advanced Modeling Techniques, Data Filter and Sort, Charts and Graphs, Table formula and Scenario building, Lookups: V lookup Match & offset pivot tables.

#### Unit 2

**10 Hours**

**Financial Statement Analysis:** Introduction to Financial Statement Analysis, Financial Reporting Mechanics, Understanding Income Statement, Balance Sheet, Cash Flow Statement, Financial Analysis Techniques, Inventories, Long-Lived Assets, Non-Current Liabilities, Application of Financial Statement.

#### Unit 3

**13 Hours**



Financial Ratios: Ratio analysis of industries, Du point Analysis, Peer to peer analysis, Preparation of Financial Analysis report on an industry. Financial Management: Time value of money, long-term financing, Cost of capital, Measure of Leverage, Budgets, Types of Budgets.

## Unit 4

**12 Hours**

**Equity Research Modelling:** Prepare an Income Statement, Balance sheet, Cash Flow Statement, Cost Statement, Analyze Revenue Drivers, Debt, Income Statement, Balance Sheet, and Cash Flow Statement, Performa Adjustments, Income Statement - Compute Margins, Balance Sheet - Compute Ratios, Cash Flow Statement Projection, Valuation- Discounted Cash Flow Method (DCF), Valuation – Relative Valuation (Football Field Chart), Valuation – Assumptions for Valuation Model, Prepare Valuation Model, Prepare Presentation Sheet, Prepare Company Overview, Sector Overview.

### Transaction Mode

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

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- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)

### Suggested Books:

- Business Data Analysis using Excel – David Whigham – Oxford University Press
- Mastering Financial Modeling in Microsoft Excel – Alastair L. Day
- Practical Financial Modeling – Jonathoan Swan

### Reference Books:

- Financial Modeling Using Excel and VBA by Chandan Sengupta, John Wiley & Sons
- Building Financial Models with Microsoft Excel: A Guide for Business Professionals, K. Scott Proctor, 2nd Edition, John Wiley & Sons
- Advanced Modeling in Finance using Excel and VBA By Mary Jackson, Mike Staunton, John Wiley & Sons
- Next Generation Excel: Modeling in Excel for Analysts and MBAs By Isaac Gottlieb, John Wiley & Sons
- Financial Modeling Module, NSE Academy



**Course Title: Role of Financial Technology in the Financial Markets**

L	T	P	Cr.
2	0	0	02

**Course Code: GFN204**

**Total Hours: 30**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Understand how Financial Technology disrupts traditional financial services through innovative technologies and business models.
2. Analyze how Financial Technology integrates with existing financial infrastructure to enhance efficiency and accessibility.
3. Evaluate the regulatory challenges and opportunities posed by Financial Technology's influence on the financial market.
4. Explore how Financial Technology empowers consumers with greater control over their finances through personalized services and streamlined processes.

**Course content**

**UNIT 1**

**6 Hours**

The Financial Technology opportunity to improve the financial system, Financial Innovation: Theory, History, Today, Encryption and Information Security,

**UNIT 2**

**8 Hours**

Blockchains and Cryptocurrencies, Bitcoin, Blockchains and Cryptocurrencies, The cryptocurrency ecosystem, present and future, Blockchains and Cryptocurrencies, Payment Systems; Blockchain as infrastructure

**UNIT 3**

**6 Hours**

Privacy and financial data, Platforms: Economics and Strategy: How "Traditional" Machine Learning Works: How Do We Evaluate Machine Learning Models? How "Deep" Machine Learning Works,

**Unit 4**

**10 Hours**

How Big Data Changes Things, AI Platforms and Financial Technology data & applications, Intro to Disruptive Technology Cases in Financial Technology, Payments and Money Transfers: Pirate Booty, Markets and Price Discovery: Trumid, Capital Allocation: Betterment, Financial Technology operational, technology, and regulatory risks, Cyber Security, Fraud, Crime, and Law Enforcement in Financial Technology

**Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

**Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**



- Courses:: NPTEL
- e-PGPathshala (inlibnet.ac.in)
- e-PGPathshala (inlibnet.ac.in)

### Suggested Text Books:

1. Indian Financial Services, M Y Khan
2. Marketing of Financial Services, Dr D Guruswamy
3. Financial Services in India, Avadhani, V. A.
4. Risk and Insurance Concepts, P Perriasamy, M Veerasevalam
5. Financial services of India, Dr. D Guruswamy
6. Capital Markets & Financial Services, Anil Agashe Financial services, M. Y. Khan

### Course Title: Major Project Work

Course Code: GFN205

### Learning Outcomes

L	T	P	Cr.
-	-	8	04

On the completion of the course, the students will be able to

1. Apply advanced research skills to tackle real-world problems, fostering independent inquiry and analysis.
2. Develop innovative solutions or methodologies to address complex challenges within the chosen field.
3. Demonstrate effective project management and leadership capabilities, including resource allocation and time management.
4. Communicate project findings and outcomes persuasively, both orally and in writing, to diverse audiences, enhancing presentation and dissemination skills.

### Course Content

The Minor Project course is designed to provide students with hands-on experience working in a professional environment, allowing them to apply their knowledge and skills to real-world situations. Through this program, students shall get the opportunity to work with experienced professionals and gain exposure to various industries, developing their communication, time management, and teamwork skills.

### Transaction Mode

Peer Demonstration, Field Visit, Role Play, Apprenticeship

### Course Title: Block chain Technology and Its Applications

Course Code: GFN206

L	T	P	Cr.
2	0	0	02

**Total Hours: 30**

### Learning Outcomes





On the completion of the course, the students will be able to

1. Analyze Blockchain Technology: Critically assess blockchain principles and mechanisms.
2. Synthesize Use Cases: Identify and evaluate blockchain applications across industries.
3. Apply Development Skills: Proficiently develop blockchain-based solutions.
4. Evaluate Ethical & Regulatory Implications: Assess ethical and regulatory considerations in blockchain adoption.

## **Course Content**

### **Unit 1**

**09 Hours**

Blockchain Foundations: The Brief, Brief History of Blockchain, The Move to Decentralization Ledgers, Distributed Ledgers and Consensus, need a Decentralized Ledger System, Centralized Trusted Party - Advantages and Disadvantages, Security, Integrity and Privacy Issues of a Decentralized System.

### **Unit 2**

**07 Hours**

The Technical Cryptographic Elements Side: Cryptography, Cryptographic Elements: Public Key & Private Key and Signing, Cryptographic Elements: Digital Signature & Hash Value.

### **Unit 3**

**07 Hours**

Blockchain Platforms: Classification of Blockchain Platforms. An Overview of the 5 Key Perspectives. Highlights of Major Blockchain Platforms, Concept of Ethereum, Proof of Work and Proof of Stake, Token.

### **Unit 4**

**07 Hours**

Blockchain Applications: Selection Criteria for Blockchain, Blockchain, and Enterprise – A Technology of Coordination the Limitations, Opportunities, and Challenges of Blockchain, Risks and Limitations of Blockchain.

## **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

## **Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [Courses: NPTEL](#)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala.inflibnet.ac.in)

## **Suggested Text Books:**

- Blockchain Revolution by Don and Alex Tapscott



- The Book of Satoshi by Phil Champagne
- The Basics of Bitcoins and Blockchains by Antony Lewis
- The Blockchain Developer by Elad Elrom
- Crypto assets by Chris Burniske and Jack Tatar

### **Suggested Reference Books:**

- Wharton professor and author Kevin Werbach “Blockchain”
- The Basics of Bitcoins and Blockchains by Antony Lewis
- The Truth Machine: The Blockchain and the Future of Everything  
Michael Casey and Paul Vigna

### **Course Title: Blockchain technology and Its Applications (Lab)**

**Course Code: GFN212**

### **Learning Outcomes**

L	T	P	Cr.
0	0	2	01

**Total Hours: 30**

On the completion of the course, the students will be able to

1. Understand the foundational concepts and principles of blockchain technology.
2. Develop skills in creating and deploying smart contracts and decentralized applications.
3. Learn strategies and techniques to ensure security and privacy in blockchain implementations.
4. Apply blockchain technology to solve real-world problems and explore case studies across various industries.

### **Course Content**

This lab-intensive course provides a comprehensive exploration of blockchain technology and its practical applications. Students will delve into the fundamental concepts underlying blockchain, including distributed ledger technology, consensus mechanisms, and cryptographic principles. Through hands-on exercises, students will gain proficiency in developing and deploying smart contracts, creating decentralized applications (DApps), and exploring blockchain security measures. Real-world case studies will showcase blockchain's potential across industries such as finance, supply chain management, and healthcare. By the end of the course, students will be equipped with the knowledge and skills necessary to harness blockchain's transformative potential in various professional settings.

### **References**

- Antonopoulos, A. M. (2018). *Mastering Bitcoin: Programming the Open Blockchain* (2nd ed.). O'Reilly Media.
- Buterin, V., & Wood, G. (2014). Ethereum White Paper. Retrieved from <https://github.com/ethereum/wiki/wiki/White-Paper>



- Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction*. Princeton University Press.
- Swan, M. (2015). *Blockchain: Blueprint for a New Economy*. O'Reilly Media.
- Tapscott, D., & Tapscott, A. (2016). *Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies is Changing the World*. Portfolio Penguin.
- Vigna, P., & Casey, M. J. (2015). *The Age of Cryptocurrency: How Bitcoin and Digital Money are Challenging the Global Economic Order*. St. Martin's Press.

**Course Title: International Political Analysis**  
**Course Code: GFN207**

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Identify key actors, theories, and concepts in international politics to analyze global events and trends effectively.
2. Apply analytical frameworks such as realism, liberalism, and constructivism to understand and interpret complex international phenomena.
3. Evaluate global challenges such as security threats, human rights issues, and transnational crises through interdisciplinary lenses.
4. Analyze case studies and current events to assess the dynamics of international relations and develop informed perspectives on global issues.

**Course Content**

**Unit 1**

**10 Hours**

Introduction to International Relations: Key Concepts and Theoretical Approaches. Historical Context: Evolution of the Modern International. Actors in International Politics: States, Non-State Actors, and International Organizations. Power and Influence: Understanding Power Dynamics and Balance of Power in International Relations

**Unit 2**

**12 Hours**

Realism vs. Liberalism: Comparative Analysis of Major Theoretical Perspectives. Constructivism and Critical Theory: Examining Alternative Approaches to International Relations. International Political Economy: Understanding the Interplay between Politics and Economics on the Global Stage. Gender, Identity, and Culture: Exploring Non-traditional Factors in International Political Analysis

**Unit 3**

**12 Hours**



Security Studies: Analysis of Conflict, War, Terrorism, and Weapons Proliferation. Human Rights and Humanitarian Intervention: Ethical Considerations in International Politics. Global Governance: Addressing Transnational Issues such as Climate Change, Migration, and Pandemics. Emerging Threats: Cybersecurity, Hybrid Warfare, and Technological Challenges in the 21st Century

#### **Unit 4**

**11 Hours**

Regional Dynamics: Case Studies from Different Regions, such as the Middle East, Asia-Pacific, Europe, and Africa. Diplomatic Relations and Foreign Policy Analysis: Understanding State Behavior in International Affairs. Case Studies in International Conflict Resolution and Peacebuilding Efforts. Contemporary Issues: Analyzing Current Events and their Implications for International Politics

#### **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

#### **Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [Courses: NPTEL](#)
- [e-PGPathshala \(inflibnet.ac.in\)](#)
- [e-PGPathshala \(inflibnet.ac.in\)](#)

#### **Reading List**

- James Rosenau, "Thinking Theory Thoroughly. 19-26. Originally published in James N. Rosenau, *The Scientific Study of Foreign Policy*, London: Frances Pinter, 19-31.
- Jean Jacques Rousseau, "The State of War: Confederation as Means to Peace in Europe".
- John Gerard Ruggie, "Continuity and Transformation in World Polity: Towards Neorealist synthesis", in Robert O. Keohane, ed. *Neorealism and its Critics*, pp. 131-157.
- Joseph M. Greico, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism", *International Organization*, Vol. 42, No. 3, Summer, 1988, pp. 485-507.
- Kenneth Waltz, "Explaining War: The Levels of Analysis", from *Man, the State and War*.
- Kenneth Waltz, "Laws and Theories," in Robert O. Keohane, ed. *Neorealism and Its Critics*,
- Kenneth Waltz, "Reductionist and Systemic Theories in Theories of International Politics, pp. 60-78.



**Course Title: Technology Disruption in Financial  
Technology**  
**Course Code: GFN208**

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

### **Learning Outcomes**

On the completion of the course, the students will be able to

1. Develop strategies to adapt to and leverage technological disruptions for competitive advantage.
2. Integrate disruptive technologies into Financial Technology business models to drive innovation and growth.
3. Navigate regulatory challenges posed by technological disruptions in the Financial Technology industry effectively.
4. Foster resilience to market changes induced by technological disruptions through agile responses and strategic planning.

### **Course Content**

#### **Unit 1**

**12 Hours**

Introduction to Financial Technology, innovation & disruption: A brief history of Financial Technology and overview of recent developments, Theoretical underpinnings of disruption, Distinguishing between disruption, innovation, and novelty

#### **Unit 2**

**12 Hours**

Financial Technology applications in banking and insurance, understanding banking and insurance business models and scope of disruption, Developments in banking tech and insurtech, including potential future scenarios

#### **Unit 3**

**11 Hours**

Digital money and cryptos for Financial Technology; History of monetary evolution and definitions, Introduction to monetary theory, the role of Central Banks in the monetary world, Central Bank issued Digital Currencies and cryptos

#### **Unit 4**

**10 Hours**

Payments and open banking; Introduction to digital payments, The EU's PSD II: background and implications, Opportunities from open banking for Financial Technology.

### **Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

**Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- [Courses:: NPTEL](#)
- [e-PGPathshala \(inflibnet.ac.in\)](http://e-PGPathshala (inflibnet.ac.in))



- [e-PGPathshala \(inflibnet.ac.in\)](http://inflibnet.ac.in)

### Reading Books

- Disrupt! 100 Lessons in Business Innovation, by James Bidwell
- Innovation and Its Enemies: Why People Resist New Technologies, by Calestous Juma
- The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators, by Jeff Dyer, Hal Gregersen, Clayton M. Christensen
- The Obstacle is the Way, by Ryan Holiday
- Mapping Innovation: A Playbook for Navigating a Disruptive Age, by Greg Satell
- Bold: How to Go Big, Create Wealth, and Impact the World, by Peter H. Diamandis.

### Course Title: Electronic Payment System

Course Code: GFN209

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

### Learning Outcomes

On the completion of the course, the students will be able to

1. Evaluate the security measures of electronic payment systems to ensure safe transactions.
2. Analyze the impact of electronic payment systems on market dynamics and consumer behavior.
3. Integrate emerging technologies to optimize electronic payment systems for efficiency and scalability.
4. Assess regulatory frameworks governing electronic payment systems to ensure legal compliance and consumer protection.

### Course Content

#### Unit 1

**11 Hours**

Introduction to Digital Payment System: Meaning, Features, Types, Benefits and Barriers to Digital Payment; Role of digital payment in India, Reforms in Digital payments. Innovative Payment Methods: Methods of Digital payments [Debit Card, Credit Card, Smart Cards, e-money], Micropayments: Mobile payments, Wireless payments, digital wallets, the Google Wallet all Apps, Risks involved in digital payments.

#### Unit 2

**12 Hours**

Card Payment and POS Machines: Basics of Cards, PCI-DSS, Card design-Magstripe, EMV, Card Scheme, Factors of authentication, MDR &MCC, Card backend process, Disputes chargeback, Refund and Profitability, Point of Sale (POS): Types of POS and types of transactions, Business Model of POS machine, Back-end process of POS machine, Fund settlement between



parties and risk, Payment & Remittance, Interoperability in payments and Grievance handling.

### Unit 3

**10 Hours**

Recurring Digital Payment: Overview and understanding of ACH (NACHA/NACH) and ABPS payments. Transaction flow of ACH & NACH, Features, and benefits of ACH & NACH, Brief on BACS

### Unit 4

**12 Hours**

Lending and Crowdfunding: Lending and Personal finance- for individuals identifying the possibilities of lending on online platforms for individuals; Financial Technology Business Applications; Crowdfunding and Business Financing: Identifying the possibilities of Lending /Crowdfunding on online platforms for business.

### Transaction Mode

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

### Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

- [Courses :: NPTEL](#)
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))
- [e-PGPathshala \(inlibnet.ac.in\)](http://e-PGPathshala (inlibnet.ac.in))

### Suggested Books:

1. Bitcoin and Cryptocurrency Technologies. Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, Steven Goldfeder and Jeremy Clark. Blockchain Basics: A Non-Technical Introduction in 25 Steps, Daniel Drescher
2. Step by Step Crowd-funding: Everything you need to Raise money for the Crowd by Joseph Hogue, CFA
3. Digital Banking – Indian Institute of Banking and Finance

### Reference Material:

- Banking Beyond Banks and Money: A guide to Banking Services in Twenty-first Century – Paolo Tasca, Tomaso Aste, Lorian Pelizzon, Nicolas Perony
- John E. Marshall & Vipul K. Bansal: Innovative methods (Prantice Hall)
- Digital Payments- Trends, Issues and Opportunities- Ratan P. Watal Principal Adviser, NITI Aayog.
- [www.rbi.org.in](http://www.rbi.org.in)



**Course Title: Security and Privacy in Cyber System**

**Course Code: GFN210**

L	T	P	Cr.
2	0	0	02

**Total Hours: 30**

### **Learning Outcomes**

On the completion of the course, the students will be able to

1. Evaluate potential security risks and vulnerabilities within cyber systems to mitigate threats effectively.
2. Interpret and apply privacy regulations to ensure compliance and safeguard sensitive data.
3. Apply advanced encryption techniques to protect data integrity and confidentiality within cyber systems.
4. Critically analyze cybersecurity policies and strategies to enhance resilience against evolving cyber threats.

### **Course Content**

#### **Unit 1**

**06 Hours**

Introduction to Cyber Security: Introduction to Cyber Crime, Information Security, Securing web browser, email security, and smartphone security. Cyber Security Initiatives in India: Counter Cyber Security Initiatives, Cyber Security Exercise, Cyber Security Initiative Handling, Cyber Security Assurance

#### **Unit 2**

**09 Hours**

Security in Evolving Technology: Biometrics, Mobile Computing and Hardening on Android and IOS, IOT Security, Web server configuration and Security. Introduction, Basic security for HTTP Applications and Services, Basic Security for Web Services like SOAP, REST, etc., Identity Management and Web Services, Authorization Patterns, Security Considerations, and Challenges. Open Source/ Free/ Trial Tools: ADB for Android, x code for IOS, Implementation of REST/ SOAP web services and Security implementations Reviews and Conclusion

#### **Unit 3**

**06 Hours**

Security in Financial Technology: Online Banking Security, Mobile Banking Security, Security of Debit and Credit Card, UPI Security, Security of Micro ATMS, e-wallet Security, and Security Guidelines for Point of Sales (POS).

#### **Unit 4**

**09 Hours**

Computer Forensic Detection and Incident Management: Computer Investigation Process and Collecting Digital Evidences. Cyber Crime Investigation and Understanding various trace back Techniques. Acquiring data, duplicating data, and Recovering deleted Files. Understanding Boot Processes and Important System Files Investigating Network Traffic, Cyber Crimes, and Laws Understanding Various Corporate Threats.





### Transaction Mode

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

### Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

- [Courses :: NPTEL](#)
- [e-PGPathshala \(inlibnet.ac.in\)](http://inlibnet.ac.in)
- [e-PGPathshala \(inlibnet.ac.in\)](http://inlibnet.ac.in)

### Suggested Books:

- Gupta Sarika, “Information and Cyber Security”, Khanna Publishing House, Delhi.
- Nina Godbole, “Information System Security”, Wiley
- Introduction to Cyber Security available at <http://uou.ac.in/foundation-course>
- Fundamentals of Information Security <http://uou.ac.in/progdetail?pid=CEGCS-17>
- Cyber Security Techniques
- Cyber Attacks and Counter Measures: User Perspective <http://uou.ac.in/progdetail?pid=CEGCS-17>

**Course Title: Security and Privacy in Cyber Systems (Lab)**

L	T	P	Cr.
0	0	2	01

**Course Code: GFN215**

**Total Hours: 30**

### Learning Outcomes

On the completion of the course, the students will be able to

1. Understand the foundational principles and practices of cybersecurity.
2. Develop skills in identifying, analyzing, and mitigating cyber threats.
3. Learn strategies and techniques to ensure data privacy and protection in cyber systems.
4. Gain proficiency in planning and executing incident response procedures to minimize impact and recover from cyber incidents.

### Course Content

This hands-on lab course focuses on the critical aspects of security and privacy within cyber systems. Students will explore foundational principles of cybersecurity, including threat detection, risk assessment, and mitigation strategies. Practical exercises will enhance skills in implementing security measures to protect data and systems from various cyber threats. Topics



include encryption techniques, network security, secure coding practices, and incident response planning. Through real-world simulations and case studies, students will develop proficiency in safeguarding cyber systems, ensuring data privacy, and effectively responding to security incidents. This course prepares students to address contemporary cybersecurity challenges in professional settings.

**References**

- Anderson, R., & Moore, T. (2009). *Security Engineering: A Guide to Building Dependable Distributed Systems* (2nd ed.). Wiley.
- Bishop, M. (2018). *Computer Security: Art and Science* (2nd ed.). Addison-Wesley.
- Dardick, G., & Dardick, I. (2018). *Cybersecurity: A Practical Guide to the Law of Cyber Risk*. American Bar Association.
- Goodrich, M. T., & Tamassia, R. (2011). *Introduction to Computer Security*. Pearson.
- Pfleeger, C. P., & Pfleeger, S. L. (2014). *Security in Computing* (5th ed.). Prentice Hall.
- Rouse, M. (Ed.). (2020). *Incident Response*. TechTarget. Retrieved from <https://searchsecurity.techtarget.com/definition/incident-response-IR>

**Course Title: Stock Market Operations**

**Course Code: GFN211**

L	T	P	Cr.
3	0	0	03

**Total Hours: 45**

**Learning Outcomes**

On the completion of the course, the students will be able to

1. Develop advanced analytical skills to interpret market data and trends effectively.
2. Apply high-level strategic thinking to make informed investment decisions based on research findings.
3. Access and manage risks associated with stock market investments using sophisticated analysis techniques.
4. Utilize predictive modeling and forecasting methods to anticipate market movements with precision.

**Course Content**

**Unit I**

**12 Hours**

Introduction to Equity Analysis: Wealth maximization through investment in growth stocks, Value. Investing in overweight and underweight sectors, Defensive and cyclical stocks, Investing in Blue-Chip Stocks

**Unit II**

**13 Hours**

Market Analysis: Industry Analysis: Porter’s 5 Forces Model, Broad Factors (PEST) Analysis, SWOT Analysis. Company Analysis: Strategic Initiatives, Technological Capabilities, Organizational Chart, Competitors, Financial Reports, Management Reports.

**Unit III**

**10 Hours**

Stock Screening Process: Stock Screeners and how they function, Variables in stock screening, Screening Strategies, Stock Screening vs Independent Research

**Unit IV**

**10 Hours**

Investment Strategies of Successful Investors: Investment strategies followed by Benjamin Graham, John Templeton, Philip Fisher, Peter Lynch, Warren Buffet, Rakesh Jhunjhunwala and other successful investors

**Transaction Mode**

Cooperative learning, Collaborative Teaching, Quiz, Open talk, Inquiry-based learning, Group discussion, Active participation, Kahoot Learning, Mentimeter, and Jigsaw Classroom

**Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]**

- Courses: NPTEL
- e-PGPathshala (inlibnet.ac.in)
- e-PGPathshala (inlibnet.ac.in)

**Text Books:**

- Punithavathy Pandian, “Security Analysis and Portfolio Management”, Vikas Publishing House Pvt. Ltd.
- Prasanna Chandra, “Investment Analysis and Portfolio management”, Tata McGraw Hill, 3<sup>rd</sup> Edn., 2008

**References:**

- V. A. Avadhani, Investment and Securities Market in India, Himalaya Publishing House.
- Sanjeev Agarwal, A Guide to Indian Capital Market, Bharat Publishers
- 5. Ravi Puliani and Mahesh Puliani, Manual of SEBI, Bharat Publication