

SYLLABUS



B. Com. FinTech

2026- 2029

Department of Accounting



Jai Narain Vyas University, Jodhpur

ACADEMIC SESSION 2026 – 2029

SYLLABUS

**(B.Com. FinTech, Three Year Undergraduate
Programme)**

(As per NEP 2022)

AEDP

2026-2029

JAI NARAIN VYAS UNIVERSITY, JODHPUR

The Department of Accounting at Jai Narain Vyas University, Jodhpur, has a rich history dating back to 1962. Initially part of the Faculty of Commerce, it became an independent department in 1990. Over the past three decades, the department has experienced immense growth and has played a pivotal role in shaping the futures of over 18,000 accounting graduates. The department takes great pride in its academic contributions, having produced over 100 PhDs that showcase its commitment to advanced accounting research.

The Department of Accounting currently offers a range of programs including M.Com. (Accounting), B.Com. Honors (Accounting), B.Com. (Accounting and FinTech), Post Graduate Diploma in Computer Accounting and Auditing, Post Graduate Diploma in Tax Practice, and Post Graduate Diploma in Cost and Management Accounting. In recent years, the department has focused on leveraging technology and prioritizing student safety and security. The integration of smart boards, full internet connectivity, and a comprehensive CCTV system allows for an interactive, secure learning environment where students can access online resources and stay updated on the latest industry trends. With its continued dedication to fostering scholarly development, applying technology, and nurturing student talents, the Department of Accounting has established itself as a distinguished and forward-thinking institution within Jai Narain Vyas University.

TEACHING FACULTY

The Department of Accounting is headed by **Dr. Mangu Ram** with rich teaching experience of over 18 years. The department is supported by four Assistant Professors. Our teaching faculties are widely acknowledged as leaders in research in varied Accounting and Finance Streams. The faculty members have authored various books, produce academic papers, and written an array of articles for general accounting and business publications. The research and consultancy are translated into a classroom experience that is theoretically grounded, evidence-based, practically and forward looking. The teaching team comprises of:

S.NO	NAME	DESIGNATION
	Dr. Mangu Ram	Assistant Professor
	Dr. Virendra Tater	Assistant Professor
	Dr. Anil Verma	Assistant Professor
	Dr. Yashpal Meena	Assistant Professor

PROGRAMME OBJECTIVES

- To provide strong foundations in accounting, auditing, taxation, and financial management principles and practices.
- To impart in-depth knowledge of emerging technologies like AI, machine learning, blockchain, robotic process automation, and their transformational impact on accounting and finance.
- To equip students with skills in computer programming, data science, financial modelling, business analytics, and information systems tailored for the finance industry.
- To keep students updated with the latest fintech innovations and prepare them for technology-driven roles in the future.
- To develop analytical thinking, problem-solving, communication, and interpersonal abilities.

ADMISSION



Eligibility Criteria for this Programme:

- The candidate must have completed Senior Secondary level (10 + 2) or other level which is equivalent to Senior Secondary level in any stream from any recognized Board.
- Reservation of Scheduled Caste / Scheduled Tribes / Disabled / OBC / SBC / EWS. and wards of University employees will be as per University rules.

MEDIUM OF INSTRUCTION

The language medium of instructions and medium of examination shall be English and Hindi.

EXAMINATION SCHEME

The candidate will take the examinations at the end of the each semester as per university examination system. The weightage of marks between continuous Assessment (CA) and end of semester Examination (EoSE) shall be 20% and 80% respectively.

Passing Minimum: A student is declared to have passed a given subject only when he/ she secures a minimum of 40 marks in the semester examination and an aggregate of 40% marks. There is 40% minimum passing marks for the internal assessment component.

The semester examination system/scheme will be followed as per University Rules.

TEACHING METHODS

A variety of modern pedagogical techniques will be employed to ensure maximum understanding and retention of course material. These include:

- **Interactive Lectures:** Key concepts and frameworks will be introduced through engaging lectures that encourage student participation and discussion.
- **Case Studies:** Real-world examples and case studies will be analysed to develop analytical and critical thinking skills. Students will learn to apply course frameworks to business situations.
- **Presentations:** Students will prepare and deliver presentations individually and in teams to hone communication and public speaking skills.
- **Assignments:** Individual and group exercises, assignments, and projects will be given to enhance application of theoretical knowledge.
- **Practical Training:** Hands-on practical training will be provided to develop relevant skills and proficiency.
- **Lab Training:** Extensive lab training will be included to supplement theoretical learning with practical experience.
- **Workshops:** Interactive workshops and activities will be conducted to stimulate interest and provide practical exposure.
- **Industry Visits:** Field trips to relevant organizations will be organized to provide real-time insights into industry practices and trends.
- **Guest Lectures:** Experts from the industry will be invited to conduct guest lectures and share their invaluable knowledge and experiences.

In the third-year, AEDP B.Com FinTech program integrates academic learning with practical industry exposure. Students will be required to engage in an apprenticeship with recognized industry partners, ensuring hands-on experience in financial technologies, digital banking, insurance and applied commerce practices. Alongside this, they must complete the Multi-Discipline Credits (MDC) and Value-Added Courses (VAC) to fulfil the academic credit requirements through SWAYAM MOOCs.

PROGRAMME OUTCOME

By the end of this programme, students will be able to:

- Leverage automation, data analytics and financial technologies to transform accounting and finance systems, processes, and decision-making.

- Develop technology-based solutions like AI assistants, predictive models, blockchain ledgers etc. for financial services.
- Implement programming languages like Python and R to gather, organize, analyze and interpret complex financial data.
- Create interactive dashboards, visualizations, and financial models using latest tools and techniques.
- Demonstrate proficiency in core accounting and finance concepts, regulatory standards, and ethical practices.
- Communicate and collaborate effectively with stakeholders to implement fintech-driven change in organizations.
- Recognize the societal impacts of financial technologies and evolve as responsible, tech-savvy finance professionals.
- Pursue rewarding careers in high-growth areas like fintech, data analytics, financial modelling, robo-advisory, blockchain etc.

NOTE:

All academic provisions relating to admission, examination, evaluation and other related academic procedures, as notified under the NEP Guidelines by the Academic Section, Jai Narain Vyas University, Jodhpur, through Order No. JNVU/Aca/2025/1585 dated 03.10.2025 and subsequent amendments, shall be equally applicable to all programmes offered under the AEDP framework.

B. COM FINTECH

APPRENTICESHIP EMBEDDED DEGREE PROGRAMMES (AEDP)

STRUCTURE 2026 – 29 AS PER NEP GUIDELINES (JNVU)

Level (NHEQF)	Semester	Course Type	Course Code	Course Title	Credits
SEMESTER I					
4.5	I	Major	02/ACC-BCF/MJR/101T	Fundamentals of Accounting	6
4.5	I	Major	02/ ACC-BCF /MJR/102T	Fundamentals of FinTech	6
4.5	I	Major	02/ ACC-BCF /MJR/103T	Database Management Systems (DBMS)	6
4.5	I	AEC		General English	4
4.5	I	SEC	02/ ACC-BCF /SEC/101T	Foundations of Computing and Development	3
TOTAL CREDITS FOR SEMESTER I					27
SEMESTER II					
4.5	II	Major	02/ ACC-BCF /MJR/151T	Business Data Analysis	6
4.5	II	Major	02/ ACC-BCF /MJR/152T	Operating Systems	6
4.5	II	Major	02/ ACC-BCF /MJR/153T	Corporate Accounting	6
4.5	II	AEC		General Hindi	4
4.5	II	SEC	02/ ACC-BCF /SEC/151T	FinTech Services and Management	3
TOTAL CREDITS FOR SEMESTER II					25
SEMESTER III					
5	III	Major	02/ACC-BCF/MJR/201T	Direct Taxation	6
5	III	Major	02/ACC-BCF /MJR/202T	Computer Networks	6
4.5	III	Major	02/ACC-BCF /MJR/203T	Management Accounting	6
5	III	MDC	02/ACC-BCF /MDC/201T	Artificial Intelligence (AI)	3
5	III	VAC	02/ACC-BCF /VAC/201T	Machine Learning and Natural Language Processing in Finance	3

TOTAL CREDITS FOR SEMESTER III					24
SEMESTER IV					
5	IV	Major	02/ ACC-BCF /MJR/251T	Financial Management	6
5	IV	Major	02/ ACC-BCF /MJR/252T	Blockchain and Cryptography	6
4.5	IV	Major	02/ ACC-BCF /MJR/253T	Java Programming with OOP	6
5	IV	SEC	02/ ACC-BCF /SEC/251T	Business Intelligence and Advanced Data Analysis	3
5	IV	MDC	02/ ACC-BCF /MDC/251T	Cyber Security	3
TOTAL CREDITS FOR SEMESTER IV					24
SEMESTER V					
5.5	V			APPRENTICESHIP	20
5.5	V	MDC		CREDITS FROM SWAYAM	3
TOTAL CREDITS FOR SEMESTER V					23
SEMESTER VI					
5.5	VI			APPRENTICESHIP	20
5.5	VI	VAC		CREDITS FROM SWAYAM	3
TOTAL CREDITS FOR SEMESTER VI					23

SEMESTER	CREDITS
I	25
II	25
III	24
IV	24
V	23
VI	23
TOTAL CREDITS	144

Undergraduate Programme B. Com FinTech. Syllabus, Semester - I	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	I
Name of Course	Fundamentals of Accounting
Course Code	02/ACC-BCF/MJR/101T
Course Type	Major (MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	Students will demonstrate proficiency in IFRS/Ind-AS standards, analyze automated cost sheets, and handle complex business insurance and process-driven claims
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Global Reporting Framework & Standards Introduction to International Financial Reporting Standards (IFRS) and Indian Accounting Standards (Ind-AS); Generally Accepted Accounting Principles (GAAP).
II	Advanced Entity Reporting & Reconstitution Preparation of Final Accounts for Not-For-Profit Organisations; Accounting for Partnership Firms—Reconstitution, Dissolution, Amalgamation, and Sale/Conversion of firms.
III	Claims, Departments & Cost Foundations Insurance Claims (Loss of Stock and Consequential Losses); Departmental Accounts (Allocation & Apportionment). ; Introduction to Costing —Types, Elements, and Methods of Cost; <i>Material Cost Control and computation in lean manufacturing</i>
IV	Resource Efficiency & Analytics Employee Cost—Incentive Plans and Labour Cost computation; Overheads—Classification, Allocation, and Absorption; Unit/Single Costing; Cost Sheet and Tender Pricing
V	Process & Service Costing Models Process Costing—Normal/Abnormal losses, By-Products, and Joint Products; Service (Operating) Costing; Job, Batch, and Contract Costing

Suggested Readings

- Financial: Corporate Accounting by Naseem Ahmed (Atlantic Publishers) – focuses on modern Ind-AS.
- Agarwal, A.N. & Agarwal, K.N.: Higher Science of Accounting, Kitab Mahal, Allahabad.
- Anthony, R.N. and Reece, J.S.: Accounting Principles, Rich Irwin, Inc.
- Gupta, R.L. and Radhaswamy, M: Financial Accounting, Sultan chand and Sons, New Delhi.
- Costing: Cost Management: A Strategic Emphasis by Blocher, Stout, and Juras (McGraw Hill).
- Horngren, Charles, Foster and Datar: Cost Accounting-A, Managerial Emphasis, Prentice Hall of India, N. Delhi.
- Digital Integration: Accounting Information Systems by Marshall B. Romney (Pearson).

- Reference: Advanced Accountancy by Jain & Narang (Kalyani Publishers).

Undergraduate Programme B. Com FinTech. Syllabus, Semester - I	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	I
Name of Course	Fundamentals of FinTech
Course Code	02/ACC-BCF/MJR/102T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	On completion of this course, the students will be able to - • understand the basic knowledge of financial technology used in accounting and finance sector • Understand and evaluate how FinTech impacts various financial sectors. • Apply data-driven decision-making for better strategies
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Introduction to Fintech - Overview of Fintech: Definition, evolution, scope, impact on traditional finance; Key Enabling Technologies: AI, machine learning, big data, blockchain, cloud computing, mobile technology; Regulatory Landscape: Key regulations and compliance, regulatory bodies, opportunities and challenges
II	Fintech Innovations in Financial Services - Digital Banking: Neobank's, challenger banks, online banking, open API integration; Digital Payments: Cryptocurrencies, mobile wallets, contactless payments, P2P lending, crowdfunding; Wealthtech: Robo-advisors, crypto exchanges, tokenized assets, asset digitization; Insurtech: Digital distribution, data analytics, blockchain applications, risk management
III	Emerging Technologies in Fintech - Quantum Computing: Basics and applications in fintech; Augmented/Virtual Reality: Use cases in banking and financial services; Big Data Analytics: Managing market data, ETL processes, structured vs unstructured data, SQL and NoSQL databases
IV	Fintech Implementation Strategies - Working with Fintech Companies: Integration approaches, legacy systems, transformation teams; Conducting Due Diligence: Market research, competitive analysis, growth strategies, cultural assessment; Investor Landscape: Industry networks, accelerators, incubators, M&A activities
V	Implications of Fintech - Ethics and Social Impact: Responsible development, economic and social impact ; Future Trends: Emerging technologies, applications, and business models ;

	Strategic Considerations: Diagnosing aging systems, build vs buy decisions, open source pros and cons
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Suggested Readings-

- FinTech for Dummies by Steven R. O'Hanlon, Susanne Chishti, Brendan Bradley; Wiley
- FinTech: The Impact and Influence of Financial Technology on Banking and the Finance Industry by Richard Hayen; Creatspace Independent Hub
- FinTech in a Flash: Financial Technology Made Easy by Augustin Rubini; Zaccheus Entertainment
- The FINTECH Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries (Wile01) by Sussane Chishti, Janos Baberis; Wiley
- Artificial Intelligence in Practice: How 50 Successful Companies Used AI and Machine
- Learning to Solve Problems by Bernard Marr, Matt Ward, Mike Chamberlain; Gildan Media
- FinTech: The Technology Driving Disruption in the Financial Services Industry by Parag Y Arjuneadkar; Auerbach Publications

Undergraduate Programme B. Com FinTech. Syllabus, Semester - I	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	I
Name of Course	Database Management Systems (DBMS)
Course Code	02/ACC-BCF/MJR/103T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	After the completion of this course students will be able to:- • Explain various data models including relational and ER models. • Perform normalization from 1NF to BCNF to ensure data consistency and eliminate redundancy. • Construct SQL queries using SELECT, JOIN, GROUP BY, and subqueries. • Analyze concurrency issues such as locks, deadlocks, and isolation levels. • Apply the CAP theorem to evaluate trade-offs in distributed systems
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics

I	Introduction to Databases - File systems vs DBMS, Advantages and limitations of DBMS; Data models (relational, ER model); DBMS architecture - Components, functions, and layers
II	Relational Model - Structure of relational databases: Tables, attributes, tuples; Keys: Primary key, foreign key, candidate key, composite key; Constraints: Domain, entity integrity, referential integrity; Normalization: 1NF, 2NF, 3NF, BCNF – concepts, examples, and applications
III	SQL Programming - SQL basics: Data definition and manipulation; Querying with SELECT, WHERE, ORDER BY; Joins: INNER JOIN, OUTER JOIN, CROSS JOIN; Aggregation: GROUP BY, HAVING, aggregate functions; Subqueries: Nested queries, correlated subqueries; Indexing basics: Purpose, types, and performance implications
IV	Transactions & Concurrency - Transaction concepts and ACID properties; Concurrency control: Locks, two-phase locking protocol; Deadlocks: Detection, prevention, and recovery; Isolation levels: Read uncommitted, read committed, repeatable read, serializable
V	NoSQL & Modern Databases - Introduction to NoSQL databases: Characteristics and types; MongoDB basics: Collections, documents, CRUD operations; CAP theorem: Consistency, Availability, Partition tolerance; Distributed databases: Concepts, replication, sharding, fault tolerance

Suggested Readings:

- Korth – Database System Concepts
- Silberschatz, Korth, Sudarshan – Database System Concepts (McGraw Hill)
- Elmasri & Navathe – Fundamentals of Database Systems (Pearson)
- Raghu Ramakrishnan & Johannes Gehrke – Database Management Systems

Undergraduate Programme B. Com FinTech. Syllabus, Semester - I	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	I
Name of Course	Foundations of Computing and Development
Course Code	02/ACC-BCF/SEC/101T
Course Type	SEC
Credits	3
Total Lecture per week	3
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	• This course will enable the students to have: • Proficiency in basic and advanced programming • Ability to implement algorithms and manage memory • Skills for data analysis and visualization using Excel • Knowledge of Python automation and libraries
Total Marks	15 + 60 = 75

Part – B Contents of the Course		
Total Lecture per week		3
Unit	Topics	
I	Basics of Computer Programming Basic Computing Concepts, providing an overview of computer architecture, operating systems and software; Introduction to Computer Programming, covering basics of programming languages and problem-solving approaches; Scratch Programming, exploring visual programming concepts and creating simple animations and games; C Programming Fundamentals, introducing the C language, variables, control structures and functions.	
II	Algorithmic Thinking Basics of Memory, understanding memory concepts, storage and retrieval of data; Continuing with C Programming, delving into arrays, pointers, and basic file operations; Algorithms, focusing on fundamental algorithms, sorting, searching and problem-solving strategies; Memory Management, covering dynamic memory allocation, pointers and data manipulation	
III	Excel for Data Analysis Basic Excel Skills, introducing Excel, data entry, formatting, and basic formulas; Intermediate Excel Functions, exploring functions, data validation and conditional formatting; Data Analysis with Excel, covering pivot tables, charts and basic statistical functions; Advanced Excel Features, including macros, data consolidation, and scenario analysis	
IV	Advanced Programming with Python Python Basics, introduction to Python, syntax, variables and control structures; Python Functions and Libraries, exploring functions, standard libraries and external modules; Data Structures in Python, covering lists, tuples, dictionaries and sets; Algorithms in Python, implementing basic algorithms and problem-solving	
V	Advanced Python and Integration Advanced Python Concepts, covering classes, inheritance, decorators and generators; Python Libraries, exploring popular libraries for data analysis, machine learning and web development; Integration of Python with Excel, focusing on automating Excel tasks using Python scripts	

Suggested Readings:

- The C Programming Language by Brian Kernighan and Dennis Ritchie
- Data Structures and Algorithms in Python by Michael H. Goldwasser
- Excel Data Analysis for Dummies by Paul McFedries
- Python for Data Analysis by Wes McKinney
- Automate the Boring Stuff with Python by Al Sweigart

Undergraduate Programme B. Com FinTech. Syllabus, Semester - II	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	II
Name of Course	Business Data Analysis
Course Code	02/ACC-BCF/MJR/151T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	• After the completion of this course students will be able to - • Comfort with analysing the basic statistical tools. • Ability to understand the correlation and regression techniques. • Ability to link this idea with managerial decision. • Sound grasp of the concept of index numbers. • Understand the concept of time series analysis
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Introduction Definition, Functions, Importance and Limitations; Statistical investigation - Planning, Types, Collection of Data, Editing of Data; Classification and Tabulation; Presentation of Data - Graphic and Diagrammatic.
II	Measures of Central Tendency Arithmetic, Geometric, Harmonic and Weighted Mean, Mode, Median and Partition Values, Moving, Progressive and Composite Average; Vital Statistics
III	Measures of Deviations Dispersion - Absolute and Relative Measures (Quartile deviation, Mean deviation and Standard deviation); Skewness - Absolute and Relative Measures (Karl Pearson and Bowley's Method).
IV	Measures of Relationship Correlation- Meaning, Importance, Types, Methods - Scatter Diagram, Karl Pearson's, Spearman's Rank Correlation and Concurrent Deviation ; Regression analysis - Meaning, Importance, Co-efficients, Equations and Estimation, Standard error of estimates; Data Analysis Tools - Use of Spreadsheet, use of SPSS- Frequencies, Bar Chart, Histogram, Descriptive Statistics, Cross Tabulation
V	Analysis of Time Series and Index Number Analysis of Time Series - Meaning, Importance, Components, Measurement of Secular Trend and Seasonal Variations; Construction of Index Number - Base Conversion, Base Shifting, Deflation, Test of Reversibility; Interpolation and Extrapolation - Binomial, Newton and Lagrange method

Suggested Readings :

- Bajpai, Naval, Business Statistics, Pearson, Delhi
- Nagar, K.N. (Hindi) Sankhyiki ke Mool Tatva, Meenakshi Prakashan, Meerut
- Patri, Digambar Statistical Methods, Kalyani Publishers, Ludhiana
- Sancheti D.C. and Kapoor V.C.: Statistics Theory, Methods and Application Sultan Chand & Sons, New Delhi
- Srivastava. T.N. and Shailaja Rego Statistics for Management, Tata McGraw Hill, New Delhi
- Gupta and Goyal: Business Statistics, Ajmera Book Company, Jaipur.

Undergraduate Programme B. Com FinTech. Syllabus, Semester - II	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	II
Name of Course	Operating Systems
Course Code	02/ACC-BCF/MJR/152T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	After the completion of course, students will be able to analyze, design, and evaluate operating system components and apply these concepts to real-world computing environments.
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Introduction to Operating System (OS) - Fundamentals of OS concepts: functions, services, and evolution; Types of operating systems: batch, time-sharing, real-time, distributed, mobile OS; Comparative study of Linux, Windows, and emerging cloud-based OS platforms; Role of operating systems in virtualization and cloud computing
II	Process Management - Processes and threads: creation, states, and lifecycle; CPU scheduling algorithms: FCFS, SJF, Priority, Round Robin, Multilevel Queue; Modern scheduling in multicore and cloud environments; Case studies: Linux process management vs Windows process management

III	Memory Management - Memory allocation strategies: paging, segmentation; Virtual memory concepts: demand paging, page replacement algorithms; Memory management in modern systems (NUMA, memory virtualization); Case studies: Linux memory management vs Windows memory management
IV	File Systems - File system concepts: file structure, directories, and access methods; Disk scheduling and disk management techniques; Modern file systems: NTFS, ext4, ZFS, distributed file systems (HDFS, Google File System); Security and reliability in file systems
V	Concurrency and Synchronization - Concurrency issues in operating systems; Deadlocks: detection, prevention, and recovery strategies; Synchronization mechanisms: semaphores, mutexes, monitors; Concurrency in distributed and cloud systems (containers, microservices)

Suggested Readings -

- Silberschatz, Galvin, Gagne – Operating System Concepts (Wiley)
- Andrew S. Tanenbaum & Herbert Bos – Modern Operating Systems (Pearson)
- William Stallings – Operating Systems: Internals and Design Principles
- C.J. Date – An Introduction to Database Systems (for comparative system concepts)
- Hector Garcia-Molina, Jeffrey Ullman, Jennifer Widom – Database Systems: The Complete Book (for concurrency and transaction parallels)
- Jim Gray & Andreas Reuter – Transaction Processing: Concepts and Techniques (for concurrency and synchronization)
- D.M. Dhamdhare – Operating Systems: A Concept-Based Approach (widely used in Indian universities)

Undergraduate Programme B. Com FinTech. Syllabus, Semester - II	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	II
Name of Course	Corporate Accounting
Course Code	02/ACC-BCF/MJR/153T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	The students will be able to - • Understand about the book building process of shares, debentures, underwriting of shares and underwriting commission. • Understand Accounting related to varied business combinations and corporate restructuring techniques • have sound understandings of provisions related to various techniques of raising capital, disposal and capitalization of profits
Total Marks	30 + 120 = 150

Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Accounting for Share and Debentures - Issue of Shares and Debentures, Buy Back of Shares, Book Building Process - Concept, Stages and Pricing Strategies; Demat Account; Underwriting of Shares and Debentures; Redemption of Preference Shares & Debentures
II	Financial Statement of Companies - Acquisition of Business including Profit Prior and Post to incorporation; Preparation of Final Accounts of Companies; Disposal of Profits and Capitalization of Profits
III	Accounting for Corporate Restructuring and Business Combination - Merger and Acquisition (Ind AS 103) ; Amalgamation of Companies
IV	Consolidation of Accounts - Consolidated Financial Statements of Holding Company with one subsidiary company (Ind AS 110; Accounting for Banking and General Insurance Companies.
V	Liquidation and Winding up of Companies - Statement of Affairs and Deficiency Account; Preparation of Liquidator's Final Statement; Accounting for Public Utility Companies

Suggested Readings:

- Gupta, R.L. Radhaswamy, M.: Company Accounts, Sultan chand & sons, New Delhi.
- Maheshwari, S.N.: Corporate Accounting, Vikas publishing House, New Delhi.
- Monga, J.R., Ahuja, Girish and Sehgal, Ashok: Financial Accounting, Mayur Paper Back, Noida.
- Moore, C.L. and jaedicke, R.K.: Managerial Accounting, South Western publishing Co., Cincinnati, Ohio.
- Shukla, M.C., Grewal, T.S. and Gupta, S.C.: Advanced Accounts, S. Chand & Co., New Delhi.
- Jain, Khandelwal, Pareek and Dave: Corporate Accounting, Ajmera Book Company, Jaipur.

Undergraduate Programme B. Com FinTech. Syllabus, Semester - II	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	II
Name of Course	FinTech Services and Management
Course Code	02/ACC-BCF/SEC/151T
Course Type	SEC
Credits	3
Total Lecture per week	3
Pre-requisite for the course	NA

Course Learning Outcomes (CLO)	The students will be able to - - Analyze FinTech Evolution: Evaluate the transformation of financial infrastructure and the collaboration between traditional institutions and startups. - Navigate Alternative Finance: Understand digital funding models including Crowdfunding, P2P Lending, and ICOs. - Implement RegTech & Compliance: Utilize Regulatory Sandboxes and AI for smart regulation, fraud detection, and automated compliance. - Manage Data & Privacy: Apply financial data analytics while ensuring GDPR compliance and personal privacy protection. - Lead Digital Transformation: Address AI governance and the shift from KYC to KYD (Know Your Data) in a data-driven financial future.
Total Marks	15 + 60 = 75
Part – B Contents of the Course	
Total Lecture per week	3
Unit	Topics
I	FinTech: Introduction - Transformation – FinTech Evolution: Infrastructure, Banks Startups and Emerging Markets - Collaboration between Financial Institutions and Startups –FinTech Typology - Emerging Economics: Opportunities and Challenges - 8 From too-Small-To-Care to Too-Big-To-Fail – Introduction to Regulation Industry - The Future of RegTech and other Technologies Impacting it.
II	Digital Finance and Alternative Finance - Introduction – Brief History of Financial Innovation – Digitization of Financial Services - FinTech & Funds- Crowd funding– Regards, Charity and Equity - P2P and Marketplace Lending - New Models and New Products - What is an ICO
III	FinTech Regulation and RegTech - RegTech Ecosystem: Financial Institutions – RegTech Ecosystem Ensuring Compliance from the Start: Suitability and Funds – RegTech Startups: Challenges –RegTech Ecosystem: Regulators Industry – Use Case of AI in Smart Regulation and Fraud Detection – Regulatory Sandboxes – Smart Regulation – Redesigning Better Financial Infrastructure
IV	Data & Tech - Introduction - History of Data Regulation – Data in Financial Services – Application of Data Analytics in Finance - Methods of Data Protection: GDPR Compliance and Personal Privacy
V	AI Transformation and Future of FinTech – 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 - Data is the New Oil: Risk of Breach – The Future of Data-Driven Finance - Case Studies

Suggested Readings –

- Agustin Rubini, “FinTech in a Flash: Financial Technology Made Easy”, Zaccheus, 3rd Edition, 2018
- Susanne Chishti and Janos Barberis, “The FINTECH 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: FinTech and Strategy in the 21st Century”, Palgrave, 1st edition, 2018
- Abdul Rafay, “FinTech as a Disruptive Technology for Financial Institutions”, IGI Global, January, 2019
- Bernardo Nicoletti, The Future of FinTech: Integrating Finance and Technology in
- Financial Services, Palgrave Macmillan, August, 2018

Undergraduate Programme B. Com FinTech. Syllabus, Semester - III	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	III
Name of Course	Direct Taxation
Course Code	02/ACC-BCF/MJR/201T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	After the conclusion of study the students will be able to - • Differentiate between direct and indirect tax assessment. • To familiarise the different know-how and heads of income with their components. • Calculate total taxable income and the final tax liability for individuals, HUFs, firms, etc. • Apply accounting principles to tax-related problems and solve complex tax computation issues
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Introduction - Constitutional Provisions, Distribution of Tax Proceeds, Concepts of Income, Agriculture Income, Non-Agriculture Income, Person and Assessee, Casual Income, Total Income; Residential Status and tax liability, Income Tax Authority and their Powers
II	Income from Salary and Income from House Property
III	Income from Profits and Gains of Business and Profession; Depreciation and Income from Capital Gain.
IV	Income from Other Sources, Deemed or Clubbing Income, Set Off and Carry Forward of Losses, Deduction, Rebate and Relief
V	Income Tax Structure, Assessment of Individuals and Assessment of HUF, e-Filing of Income Tax Returns

Suggested Readings:

- Bhattacharya: Income Tax Law and Practice Lal, B.B.: Income Tax Law and Practice, Pager, Dinkar: Income Tax
- Chandra, Mahesh and Shukla, D.C.: Income Tax Law and Practice, Pragati
- Dinker Pagare: Income Tax Law and practice, Sultan Chand & Sons, New Delhi
- Girish Ahuja and Ravi Gupta: Systematic Approach to Income Tax, Sahitya
- Kanga and Paliwala: Law and Practice of Income Tax in India

- Mehrotra, H.C.: Income Tax Law & Accounts, Sahitya Bhawan, Agra
- Prasad, Bhagwati: Income Tax Law & Accounts, Wiley Publication, New Delhi Publication, New Delhi
- Singhania, V.K.: Student's Guide to Income Tax, Taxmann, Delhi

Undergraduate Programme B. Com FinTech. Syllabus, Semester - III	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	III
Name of Course	Computer Networks
Course Code	02/ACC-BCF/MJR/202T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	After the completion of this course students will be able to analyze, design, and evaluate networking systems, apply secure communication techniques, and understand the role of networking in modern distributed applications.
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Basics of Networking - Fundamentals of computer networks and layered architecture; OSI model: layers, functions, and protocols; TCP/IP model: comparison with OSI, practical relevance; Role of networking in cloud computing and modern applications
II	Data Communication Protocols - Principles of data communication and web protocols; HTTP and HTTPS: request/response cycle, secure communication; DNS: domain name resolution, caching, and modern DNS security extensions (DNSSEC); Case studies: web browsing workflow and DNS attacks
III	Transport Layer Mechanisms - Transport layer services and responsibilities; TCP vs UDP: features, applications, and performance trade-offs; Congestion control techniques: AIMD, slow start, and modern approaches (e.g., BBR); Real-world applications: streaming, gaming, and reliable data transfer
IV	Network Security - Fundamentals of encryption: symmetric vs asymmetric; Secure communication protocols: SSL/TLS architecture and handshake process; Modern security practices: HTTPS everywhere, certificate authorities, and PKI; Case studies: securing e-commerce and online banking transactions
V	APIs and Modern Networking - REST APIs: principles, design, and role in web communication; Microservices basics: architecture, communication patterns, and scalability; Networking in distributed systems: API gateways, service discovery, and load balancing; Case studies: cloud-native applications and containerized environments

Suggested Readings:

Andrew S. Tanenbaum & David J. Wetherall – Computer Networks (Pearson)

Behrouz A. Forouzan – Data Communications and Networking (McGraw Hill)

William Stallings – Data and Computer Communications (Pearson)

James F. Kurose & Keith W. Ross – Computer Networking: A Top-Down Approach (Pearson)

Douglas Comer – Internetworking with TCP/IP (Prentice Hall)

Undergraduate Programme B. Com FinTech. Syllabus, Semester - III	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	III
Name of Course	Management Accounting
Course Code	02/ACC-BCF/MJR/203T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	The students will be able to - • Identify differences between various forms of accounting- Financial, Managerial and Cost and the role of a Management Accountant. • Identify cost according to their associated activities and apply costing techniques for computing cost of products or services. • Prepare income statements using Marginal costing and absorption costing
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Introduction - Meaning, Scope, Functions, Tools and Techniques of Management Accounting; Financial Planning and Forecasting, Financial Statement Analysis - Meaning, objectives, comparative and common size statements and Trend Analysis; Ratio Analysis and Role of Managerial Person in Decision Making
II	Financial Performance Appraisal - Value Added Statements, Balanced Score Card, Free Cash Flow Analysis and Cash Flow Analysis

III	Cost information and Profit Planning - Cost information and its application, Absorption Costing, Analysis of Marginal Costing - Break-even-point and its Significance in profit planning and Decision making; Cost-volume-profit Analysis
IV	Budgeting and Budgetary Control - Concept, Techniques, Budgeting as a process of Management Planning, Preparation of Budgets, Zero Base Budgeting, Performance Budgeting and Control Ratios.
V	Analysis of Standard Costing - General Principles, Setting of Standards, Material, Labour and Overhead Cost Variance Analysis, Sales Variance Analysis and Profit or Loss Variance Analysis, Interpretation and Reporting to Key Managerial Person

Suggested Readings:

- Agarwal, J.K. & Agarwal, R.K.: Prabandhkiya Lekhankan.
- Anthony, Robert & Reece, et. al: Principles of Management Accounting, Richard Irwin Inc.
- Gupta, S.D.: Prabandhkiya Lekha Vidhi.
- Kaplan R.S. and Atkinson, A.A.: Advanced Management Accounting, Prentice Hall India, New Delhi.
- Khan, M.Y. and Jain, P.K.: Management Accounting, Tata McGraw Hill New Delhi.
- Maheshwari, S.N.: Management Accounting and Financial Control.
- Manmohan and Goyal S.N.: Principles of Management Accountancy

Undergraduate Programme B. Com FinTech. Syllabus, Semester - III	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	III
Name of Course	Artificial Intelligence (AI)
Course Code	02/ACC-BCF/MDC/201T
Course Type	MDC
Credits	3
Total Lecture per week	3
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	• Proficiency in foundational AI concepts and techniques • Ability to implement AI algorithms for search, NLP, computer vision • Apply machine learning for prediction, pattern recognition, insight discovery • Analyse ethical implications and future societal impact of AI
Total Marks	15 + 60 = 75

Part – B Contents of the Course	
Total Lecture per week	3
Unit	Topics
I	Foundations of Artificial Intelligence: Introduction to AI: history, applications, trends; Intelligent agents and environments; Problem formulation and representation; Search algorithms: uninformed, informed, heuristic functions; Logic: propositional, first-order, inference; Knowledge representation: semantic networks, frames, ontologies; Hands-on exercises implementing basic search algorithms like BFS, DFS, A*, etc.; Logic programming exercises using Prolog; Building a simple knowledge-based agent.
II	Machine Learning: Introduction to machine learning; Types: supervised, unsupervised, reinforcement; Model evaluation and validation; Linear models for regression and classification; Non-linear models: trees, SVMs; Clustering algorithms; Neural networks and deep learning; Implement linear regression, SVM, decision trees on sample datasets using Python/R; Build and evaluate models using common ML libraries like Scikit-Learn, Keras; Mini-projects on supervised learning, unsupervised learning, reinforcement learning
III	Advanced Methods in AI: Natural language processing: tokenization, POS tagging, NER; Sentiment analysis; Computer vision: image processing, recognition, segmentation; Markov decision processes; Reinforcement learning: Q-learning, policy gradients; Deep reinforcement learning; NLP exercises tokenizing text, POS tagging, named entity recognition; Building a neural machine translation model; Using pretrained models for computer vision tasks; Coding dynamic programming and Monte Carlo solutions for MDPs.
IV	AI Applications and Impact: Robotics and automation; Healthcare: imaging, predictive analytics; Bias, fairness, explainability, interpretability; Privacy and ethical considerations; Impact of AI on society; Case studies on ethical dilemmas; Semester-long project working in groups to build an AI solution for a real-world problem; Debate activities on AI ethics case studies; Guest talks by industry experts on AI applications and challenges.
V	Future of AI: Challenges and future directions; Cutting edge research areas; Responsible and trustworthy AI; Maintaining human oversight and control; Ensuring broad access and avoiding harmful monopolies; Policy issues: regulations, workforce impacts; Literature review and analysis of a cutting-edge AI research area; Group project to design and present an AI innovation concept; Discussions on AI safety research and policy considerations

Suggested Readings:

- Artificial Intelligence: A Modern Approach by Russell and Norvig
- Machine Learning with Python Cookbook by Chris Albon
- Deep Learning with Python by François Chollet
- Human Compatible by Stuart Russell

Undergraduate Programme B. Com FinTech. Syllabus, Semester - III	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	III
Name of Course	Machine Learning Language Processing in Finance
Course Code	02/ACC-BCF/VAC/201T
Course Type	VAC
Credits	3
Total Lecture per week	3
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	• Ability to apply ML and NLP techniques to financial problems • Proficiency in using Python libraries for financial analysis • Understanding of algorithmic trading and time series forecasting • Knowledge of sentiment analysis, NER for unstructured data • Hands-on experience with advanced methods like neural networks
Total Marks	15 + 60 = 75
Part – B Contents of the Course	
Total Lecture per week	3
Unit	Topics
I	Introduction to ML, NLP, and Fintech - Introduction to Machine Learning (ML), Natural Language Processing (NLP), and their applications in Fintech; Exploration of algorithms in Fintech, focusing on algorithmic trading; Overview of key ML concepts, challenges, and opportunities in the financial sector
II	ML Algorithms in Finance - In-depth study of algorithmic trading strategies and their implementation in financial markets; Understanding Random Forests, Decision Trees, k-Nearest Neighbors (KNN), and Support Vector Machines (SVM) for financial prediction
III	ML Tools and Techniques - Hands-on experience with Scikit-learn library for ML in Python; Application of Linear Regression and Logistic Regression for financial data analysis; Exploration of k-Means Clustering for customer segmentation and fraud detection
IV	Advanced ML and Neural Networks in Fintech - Introduction to Neural Networks and deep learning for financial applications; Time series analysis and forecasting methods for predicting financial trends; Exploration of advanced ML concepts such as ensemble methods, reinforcement learning, and dimensionality reduction; Implementing ML models on the cloud, with a focus on Amazon Web Services (AWS).
V	NLP in Fintech - Introduction to Natural Language Processing (NLP) and its relevance in financial data analysis; Application of Sentiment Analysis for analyzing financial news and social media sentiment; Named Entity Recognition (NER) for extracting key information from unstructured financial texts; Exploration of advanced NLP applications in a financial context

Suggested Readings:

- Machine Learning in Finance by Matthew F. Dixon
- Natural Language Processing with Python by Steven Bird, Ewan Klein, and Edward Loper
- Artificial Intelligence in Finance by Yazann Romahi

Undergraduate Programme B. Com FinTech. Syllabus, Semester - IV	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	IV
Name of Course	Financial Management
Course Code	02/ACC-BCF/MJR/251T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	On completion of this course, the students will be able to understand: • Concepts and theories related to Financial Management • The Concepts of Valuation of Financial Assets. • The concept of Dividend Policy, Working Capital
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Introduction of Financial Management - Introduction: goal of the firm; Legal forms of business organization; Taxation; Principles of Financial Management; Financial Markets and Interest rates; Understanding financial statements and cash flows; Evaluating a firm's financial performance: Financial ratio analysis; Firm performance and shareholder value
II	Valuation of Financial Assets - The Time Value of Money: compound interest; present value and future value; Annuities; Risk and return; Valuation and Characteristics of Bonds; Valuation and characteristics of stock
III	Investment in Long-Term Assets and Leverage - Capital-Budgeting Techniques and Practice: Capital-Budgeting Decision Criteria (Payback, NPV, PI, and IRR); Capital Rationing; Ethics in Capital Budgeting; Cash flows; Cost of Capital: Individual Costs of Capital; Weighted Average Cost of Capital; CAPM techniques, Evaluating New Capital Investments; Shareholder Value-Based Management

IV	Capital Structure, working capital management and dividend policy - Capital Structure and Theories of Relevance & Irrelevance, Determining the Financing Mix: Business and Financial risk; Break-even Analysis; Operating Leverage; Financial Leverage, Combined Leverage
V	Financial Modelling - Basics of Financial Modelling using Spreadsheets; Building simple forecasting and valuation models; Application of models for capital budgeting, scenario and sensitivity analysis in financial decisions

Suggested Readings –

- Ezra Solomon: Theory of Financial Management, Columbia Press.
- Ezra Solomon and John, J. Pringle: Introduction to Financial Management, Prentice Hall of India
- J. Fred Westorn and Eugene F. Brigham: Managerial Finance, Dryden Press, 6th Ed.
- James, C. Van Horne : Financial Management and Policy, Prentice Hall of India
- Khan, M.Y. and Jain, P.K.: Financial Management, Tata McGraw Hill Pandey,
- I.M.: Financial Management, Vikas Publishing House

Undergraduate Programme B. Com FinTech. Syllabus, Semester - IV	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	IV
Name of Course	Blockchain and Cryptography
Course Code	02/ACC-BCF/MJR/252T
Course Type	Major(MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	On completion of this course, the students will be able to • Analyse real-world business problems and identify how blockchain technology could be used to address specific challenges. • Illustrate the concepts of Bitcoin and other cryptocurrencies and use a crypto wallet for transactions
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Introduction to Blockchain - Definition and Core Concepts, Historical background, Evolution, components of a blockchain (blocks, transactions, consensus mechanisms). Crypto Economics and Byzantine Agreement: Economic incentives in blockchain systems, Byzantine Fault Tolerance (BFT), consensus algorithms, case studies (Ripple, Stellar).

II	Blockchain Dynamics and Forks - Dynamics of transactions and blocks, public vs. private blockchains, hard forks, soft forks, implications. Advanced Concepts: Sharding, side chains, role of verifiers, trust, cost, and speed considerations, Proof of Work, alternative consensus models
III	Distributed Virtual Machines and Smart Contracts - Overview of distributed virtual machines, smart contracts, oracles, basics of contract law. Legal Foundations and Trust in Algorithms: Basics of contract law, trust implications of algorithmic agreements, integration with legal systems. Tools for Smart Contract Development: Introduction to Open Zeppelin and Open Law, writing, deploying smart contracts, and case studies
IV	Application of Cryptography in Blockchain - Use of hash functions, digital signatures, hash functions in Proof-of-Work. Putting the Technology Together: Examples of blockchain implementations, trade-offs, considerations in implementation. Advanced Cryptographic Techniques: Homomorphic encryption, zero-knowledge proofs, post-quantum cryptography
V	Implementation in Supply Chain and Identity - Blockchain integration with existing infrastructure, trust considerations, scaling solutions. Reading and Writing Data on Blockchain: Nodes, sparse data, Merkle trees, dynamic adjustments, Layer 2 solutions (Lightning, Ethereum state channels). Industry Overview and Strategic Analysis: Overview of the blockchain industry, comparative analysis (Bitcoin, Hyperledger, Ethereum, Litecoin, Zcash), major players, strategic considerations. Capstone Project and Guest Lectures: Hands-on capstone project, guest lectures for real-world insights, Q&A sessions, and discussion forums

Suggested Readings:

- Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies Is Changing the World, Don Tapscott and Alex Tapscott, Portfolio, 2018.
- The Age of Cryptocurrency: How Bitcoin and the Blockchain Are Challenging the Global Economic Order, Paul Vigna and Michael J. Casey, Picador, 2016
- Blockchain Technology Explained: The Ultimate Beginner's Guide About Blockchain Wallet, Mining, Bitcoin, Ethereum, Litecoin, Zcash, Monero, Ripple, Dash, IOTA and Smart Contracts, Alan T. Norman, Create Space Independent Publishing Platform, 2017

Undergraduate Programme B. Com FinTech. Syllabus, Semester - IV	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	IV
Name of Course	Java Programming with OOP
Course Code	02/ACC-BCF/MJR/253T
Course Type	Major (MJR)
Credits	6
Total Lecture per week	6
Pre-requisite for the course	NA

Course Learning Outcomes(CLO)	At the end of the course, students will be able to design, implement, and evaluate software solutions that combine core programming principles with contemporary backend technologies.
Total Marks	30 + 120 = 150
Part – B Contents of the Course	
Total Lecture per week	6
Unit	Topics
I	Programming Basics - Fundamentals of programming: variables, data types, operators; Control structures: conditional statements, loops; Functions: definition, parameters, return values; Best practices in writing clean and reusable code
II	Object-Oriented Programming((OOP)) Concepts - Classes and objects: structure, instantiation, and usage; Inheritance: single, multilevel, and hierarchical; Polymorphism: method overloading and overriding; Encapsulation: access modifiers and data hiding; Case studies: OOP in Java and modern languages
III	Data Structures - Arrays: declaration, traversal, and manipulation; Lists: linked lists, array lists, and their applications; Maps: key-value storage, hash maps, and tree maps; Practical applications of data structures in problem solving
IV	Exception Handling and File I/O - Exception handling: try-catch-finally, custom exceptions; File handling: reading, writing, and managing files; Streams and serialization basics; Robust programming practices for error management
V	Backend Development - JDBC: database connectivity, queries, and CRUD operations; REST APIs: principles, design, and implementation; Introduction to Spring Boot: building simple RESTful services; Modern backend practices: scalability, modularity, and microservices overview

Suggested Books:

- Herbert Schildt – Java: The Complete Reference (McGraw Hill)
- Cay S. Horstmann – Core Java Volume I & II (Pearson)
- Robert Lafore – Object-Oriented Programming in Java
- Robert L. Kruse & Bruce P. Leung – Data Structures and Program Design in C/Java
- Mark Allen Weiss – Data Structures and Algorithm Analysis in Java
- Joshua Bloch – Effective Java (Best practices for OOP and robust coding)
- Bruce Eckel – Thinking in Java
- Paul Deitel & Harvey Deitel – Java How to Program
- Jim Keogh – JDBC Tutorial: Learning Database Connectivity with Java

Undergraduate Programme B. Com FinTech. Syllabus, Semester - IV	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	IV
Name of Course	Business Intelligence and Advanced Data Analysis
Course Code	02/ACC-BCF/SEC/251T
Course Type	SEC
Credits	3
Total Lecture per week	3
Pre-requisite for the course	NA
Course Learning Outcomes(CLO)	On completion of this course, the students will be able to: • Fundamentals of Artificial Intelligence and Business Intelligence • Use AI and Business Intelligence for Problem-Solving and Learning • Use Cluster Analysis and Other Decision Supporting Technologies for Decision Making
Total Marks	15 + 60 = 75
Part – B Contents of the Course	
Total Lecture per week	3
Unit	Topics
I	Introduction to Business Intelligence (BI) - Definition and importance of BI, Key components and architecture of BI systems, Cycle of a business intelligence analysis, Enabling factors in business intelligence projects. Data Warehousing and Business Analysis, Components of data warehousing, building a Data warehouse, Mapping the Data Warehouse to a Multiprocessor Architecture, DBMS Schemas for Decision Support, Data Extraction, Clean-up, and Transformation Tools, Metadata, reporting, and Query tools, OLAP and its interface with organizational capabilities. Big Data analysis, Live Data Analysis. Project Work, Hands-on implementation of a data warehouse, Utilizing BI tools such as Tableau for data analysis, developing visualizations using Python libraries like Matplotlib.
II	Data Mining Functionalities - Understanding the role of data mining in BI, Data Pre-processing, Cleaning, Integration, and Transformation. Association Rule Mining, Efficient and Scalable Frequent Itemset Mining Methods, Mining Various Kinds of Association Rules, Association Mining to Correlation Analysis, Constraint-Based Association Mining. Data Mining Tools and Applications, Introduction to Data Mining tools, Market Basket Analysis and its applications, Management Applications in CRM, Data Visualization using Tableau and Python.
III	Issues Regarding Classification and Prediction - Challenges and considerations in classification and prediction. Classification Techniques, Decision Tree Introduction, Bayesian Classification, Rule-Based Classification, Classification by Backpropagation, Support Vector Machines, Associative Classification, Lazy Learners, Other Classification Methods. Prediction and Model Evaluation, Accuracy and Error Measures, Evaluating the Accuracy of a Classifier or Predictor, Ensemble Methods, Model Selection.

IV	Explainable AI , AutoML, Advanced Python Libraries for ML. Dashboard Creation using Python, Introduction to dashboard concepts, building dashboards using Python libraries (Matplotlib, Seaborn).
V	Cluster Analysis - Types of Data in Cluster Analysis, Major Clustering Methods Categorization, Partitioning Methods, Hierarchical Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Clustering High-Dimensional Data, Graph Based Clustering, Constraint-Based Cluster Analysis, Outlier Analysis. Mining Object, Spatial, Multimedia, Text, and Web Data, Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Multimedia Data Mining, Text Mining, Mining the World Wide Web. Data Anomaly Detection. Dashboard Design and Implementation with Tableau, Principles of effective dashboard design, creating interactive dashboards using Tableau. Decision Supporting Technologies, Executive Support Systems, Knowledge Management Characteristics and Capabilities of DSS. Collaborative Computing Technologies: Group Support Systems. Intelligent Support Systems (Expert Systems, ANN, Genetic Algorithm, etc.) and their Managerial Applications.

Suggested Readings –

- Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining & OLAP”, Tata McGraw – Hill Edition, Tenth Reprint 2007.
- Dr. Dheeraj Mehrotra, "Basics of Artificial Intelligence and Machine Learning, Jiawei Han and Micheline Kamber “Data Mining Concepts and Techniques”, Third Edition, Elsevier, Reprinted 2012.
- G. K. Gupta “Introduction to Data Mining with Case Studies”, Easter Economy Edition, Prentice Hall of India, 2006.
- K.P. Soman, ShyamDiwakar and V. Ajay “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.
- Pang-Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.
- Stuart Russell and Peter Norvig, "Artificial Intelligence, A Modern Approach", Third Edition, Prentice Hall Series, 2010.
- TomTaulli, "Artificial Intelligence Basics: An on Technical Introduction", Apress, 2019 Edition.

Undergraduate Programme B. Com FinTech. Syllabus, Semester - IV	
Session 2026-2027	
Part – A Introduction	
Subject	Accounting
Semester	IV
Name of Course	Cyber Security
Course Code	02/ACC-BCF/MDC/251T
Course Type	MDC
Credits	3
Total Lecture per week	3
Pre-requisite for the course	NA

Course Learning Outcomes(CLO)	By the end of this course, learners will gain a strong foundation in cyber security principles, digital forensics, and legal frameworks, enabling them to understand the importance of protecting information in today's digital world. They will develop practical skills in access control, authentication, ethical hacking, and penetration testing, while learning to identify, analyze, and mitigate diverse cyber threats and attacks. Students will explore advanced security concepts such as encryption, patch management, and anonymization, equipping them to safeguard systems against evolving risks. Finally, they will acquire expertise in computer forensics, including evidence collection, preservation, and analysis, preparing them to address challenges in law enforcement, corporate investigations, and digital crime prevention.
Total Marks	15 + 60 = 75
Part – B Contents of the Course	
Total Lecture per week	3
Unit	Topics
I	Introduction to Cyber Security, Forensics, and Legal Aspects - Overview of Cyber Security and Forensics; Importance of Cyber Security in Today's Digital World; Legal and Ethical Considerations in Cyber Security; Digital Crime: Types, Overview, and Classification; Information Security and Law; Ethical Issues in Intellectual Property Rights; Copyright, Patents, and Data Privacy; Domain Names and Software Privacy; Plagiarism and Issues in Ethical Hacking
II	Access Control and Authentication, Ethical Hacking and Penetration Testing - Passcodes, Passwords, and Best Practices; Single Sign-On (SSO) Systems; Brute-force Attacks and Countermeasures; Dictionary Attacks and Prevention; Biometrics and its Role in Authentication; Multi-Factor Authentication (MFA) and Password Managers ; Understanding Ethical Hacking; Role of Penetration Testing in Cyber Security; Hands-on Ethical Hacking Techniques; Common Tools Used in Ethical Hacking; Reporting and Remediation in Ethical Hacking
III	Threats and Attacks - Distributed Denial-of-Service (DDoS) Attacks; Viruses, Worms, and Botnets; SQL Injection Attacks and Database Security; Port-Scanning Techniques and Detection; Proxies and Firewalls in Network Security
IV	Advanced Security Concepts - Automatic Updates and Patch Management; Closed-Source vs. Open-Source Software; Buffer-Overflow Attacks and Prevention; Secure Deletion and Data Recovery; Hashing, Salting, and Password Security; Secret-Key, Public-Key Encryption, and Digital Signatures; Full-Disk Encryption and Ransomware Protection; Cookies, Sessions, and Incognito Mode; Anonymization and De-identification Techniques; Verification Processes in Cyber Security; Overview of Operating Systems and App Stores Security;
V	Computer Forensics - Introduction to Computer Forensics; Use of Forensics in Law Enforcement and Employment Proceedings; Types of Computer Forensics Technology: Military, Law, Spyware, Adware; Biometrics Security Systems; Internet Security, IDS, Firewall, Public Key, and Net Privacy Systems; Vendor and Computer Forensics Services; Computer Forensics Evidence and Capture; Data Recovery, Evidence Collection, and Data Seizure; Duplication and Preservation of Digital Evidence; Computer Image Verification and Authentication; Discovery of Electronic Evidence; Electronic Document Discovery; Identification of Data and Time Keeping; Forensic Identification and Analysis of Technical Surveillance Devices; Reconstructing Fast Events; Challenges and Best Practices in Computer Forensics Analysis

Suggested Readings –

- Nina Godbole, SunitBelapure, Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Wiley.(Text Book)
- John R. Vacca, Computer forensics:computer crime scene investigation,Volume (Text Book)
- Sood, "Cyber Laws Simplified", McGraw Hill Anthony Reyes, "Cyber Crime Investigations: Bridging the Gaps Between Security Professionals, Law Enforcement, and Prosecutors"