

PONDICHERRY UNIVERSITY
DEPARTMENT OF BANKING TECHNOLOGY
SCHOOL OF MANAGEMENT

MBA: FINANCIAL TECHNOLOGY DEGREE PROGRAMME

CURRICULUM & COURSE STRUCTURE

[Academic Year 2024- 25 onwards]

**PONDICHERRY UNIVERSITY
SCHOOL OF MANAGEMENT**

DEPARTMENT OF BANKING TECHNOLOGY

The Pondicherry University (A Central University) was established by an Act of Parliament, which was enforced by a Notification of the Government of India in October 1985. The campus is spread over 800 acres of land which is rolling down to the Bay of Bengal sea beach. The inner landscape is featured by sprawling lawns, well nurtured gardens, picturesque road shapes, and lush green belt with eco-forest mostly flavored by Cashew-nuts. The tranquil setting makes Pondicherry University Campus a unique one with exquisite natural beauty with sea shore that captures viewers' imagination and provides an ideal atmosphere for persuading study and research. On the University Campus, 15 Schools and 37 Departments with ample number of students across the globe who undertake post-graduation program under Choice Based Credit System (CBCS). The University is a member of the Association of Commonwealth Universities and signed MoU with several foreign Universities/ Institutions.

School of Management

The School of Management is the first School to be established in the University in the year 1986 and is one of the popular Schools of Excellence in the campus primarily focusing on the business-related courses since the very inception of this University. The School is offering different MBA programs – MBA (Banking Technology), MBA (Financial Technology), MBA (International Business), MBA (Logistics and Supply Chain Management), MBA (General), MBA (Data Analytics), MBA (Tourism Studies), and MBA (General), MBA (Insurance Management) at Karaikal Campus, MBA(General) at Port Blair Campus.

Department of Banking Technology

Department of Banking Technology was established in the academic year 2005-06 to offer a specialized M.B.A. programme in Banking Technology under UGC's Innovative/Inter-disciplinary scheme during 10th plan. Later in the year 2009-10, started offering inter-disciplinary Ph.D., programme in the area of Management and Computer Science & Engineering. Sensing the dominance of FinTech in Finance Sector, a specialized M.B.A. programme in Financial Technology is offered from the academic year 2020-21.

COURSES OFFERED BY THE DEPARTMENT

- MBA Banking Technology
- MBA Financial Technology
- Ph.D. in Management (Banking Technology) / Computer Science and Engineering (Banking Technology)
- Integrated B.Tech- M.B.A (Submitted for Approval)

MBA (Financial Technology) is a specialized inter-disciplinary programme primarily focused on nurturing manpower in Finance, FinTech, and Banking Domain with a strong technology background to meet the growing technological needs and challenges faced by the Financial sectors. The Fintech industry uses technology to disrupt the traditional world of financial services in the areas of payments, lending, insurance, trading and funding. This

programme will cater to the need of Digital transformation of Business. It is designed to prepare the students for their careers in Financial Services, Insurance, Management, Consulting, Technology, Digital business and Data analytics.

This programme aims at:

- Imparting knowledge and skills required to manage modern digital business enterprises.
- Providing knowledge in the working areas of Finance, Management, and Operations.
- Developing skills in the Technologies used in digital business, Digital Business Transformation, Digital Twins, Internet of Things, Data Warehousing, Information Security, Digital Commerce, IT Infrastructure Management, Information System Audit, Data Analytics, Deep Learning, Blockchain, Business Intelligence, etc.

Major Highlights of the Curriculum

1. Industry Integrated Curriculum
2. Banking Internship in Public/Private Sector Banks
3. Training at / Visits to RBI, SEBI, IDRBT, ESCI, NPCI, etc.,
4. Case Study on Fortune 500 Companies
5. Forex and Stock Trading Training
6. Financial Database like Bloomberg/CMIE based courses
7. Soft skill Training by Professionals

Duration of the Programme: Two years Full Time Programme

Eligibility for Admission:

Bachelor's degree in Engineering / Technology / Computer Science / Computer Applications / Commerce / Economics / Mathematics / Statistics / Business Administration or equivalent with a minimum of 50% marks in the qualifying degree.

Admission Procedure :

Admission is based on the score secured by the candidates in Central University Entrance Test (CUET PG)/ any other test approved by the University for M.B.A. programmes. Candidates need to submit the application for M.B.A. Financial Technology Programme through online. The selection will be done by the University as per the norms.

Choice Based Credit System (CBCS):

The MBA (Financial Technology) Degree program is offered through 'Choice Based Credit System'. Under Choice Based Credit System, subjects are classified into Hard Core and Soft-Core Papers. Hard Core subjects are compulsory. The students have a choice to select from among the list of Soft-Core papers offered within the department and by other departments.

Attendance:

Each student shall obtain 70 per cent attendance to be eligible for appearing for the End Semester Examination.

Grading:

Grading of the marks obtained by the students shall be made as per the regulations of Choice Based Credit System (CBCS) of Pondicherry University.

Weightage of Marks:

For Theory courses:

- Continuous Internal Assessment and End Semester Examination shall be 40 marks and 60 marks respectively.

For Practical courses:

- Continuous Internal Assessment and End Semester Examination shall be 75 marks and 25 marks respectively.

For Internship:

- Evaluation for 100 marks consists of Internal 50 marks and external (Bank/ Industry/ Expert) 50 marks.
- Internal includes presentation 25 marks and report 25 marks. External includes Bank/Industry feedback and attendance 25 marks and external Viva examination 25 marks.

A student is declared to have passed a given course only when the student secures a minimum of 40% marks in the end-semester examination and an aggregate of 50% marks (both Internal and End-Semester Examinations). There is no minimum passing mark for the internal assessment component.

Internal Assessment Components:

The weightage of 40 marks for Internal Assessment Components shall consist of the following components.

1. Two Internal Assessment Tests (15+15) : 30 marks
 2. Assignment, Presentation, Attendance etc. : 10 marks
- Total : 40 marks

Evaluation and Revaluation of End Semester Written Examination:

The answer scripts of the End Semester Examination shall be evaluated for a weightage of 60 marks. Revaluation of the answer scripts will be done as per CBCS regulations.

Question Paper Pattern:

The question paper pattern for each of the subjects for End-Semester Written Examination **(For 60 Marks)** shall be as follows

PART A

Consist of 10 short answer questions each carrying two (02) marks (Two questions should be asked from each unit) (**10*2=20 marks**)

PART B

Five questions are to be answered (Either or Pattern) each carrying six (06) marks (Two questions should be asked from each unit) **(5*6=30 marks)**

PART C

A compulsory question consisting a case study/ problem in the relevant subject **(1*10=10 marks)**

Internship:

Internship shall be carried out by the students for 45 days in BFSI Firms, and other business enterprises. Students should attend activities assigned by the organization in order to understand the day-to-day operations and activities. A minimum of 90% attendance is Mandatory. Students have to submit Internship Report(s) duly certified by the respective authorities in the organization. A viva examination will be conducted to evaluate the knowledge and skills learned during the internship by students. Evaluation of Internship is based on Attendance, Feedback from the organization, Internship Report(s) and Viva examination.

Final Project:

Every student should carry out a project in the Third and Fourth Semester as Phase I and Phase II respectively. At the end of the project period, every student shall submit a structured project report as approved by the Faculty Guide within the period specified by the Department. In each phase, Project work will be evaluated for 100 marks based on various components.

Infrastructure Facilities:

The University has a well-equipped computer laboratory with the necessary software and hardware to cater to the learning process of students. However, all the students have to use their own personal laptops for regular classes. The University subscribes to the Corporate Databases like Bloomberg annually for organizing the Corporate Finance Lab. Access to on-line International Journals is available through Intranet in the campus.

COURSE STRUCTURE-2023-22(Onwards)

Course Code	Course Name	Course Type	Credit
NON-CREDIT BRIDGE COURSE			
MBAF301	Basics of Business Environment	Hard - Non-IT	Non credit
MBAF302	Basics of Computer Programming	Hard - IT	Non credit
MBAF303	Basics of Economics	Hard - Non-IT	Non credit
MBAF304	Basics of Problem-Solving Techniques	Hard - IT	Non credit
Course Code	Course Name	Course Type	Credits
SEMESTER I			
MBAF411	Management Concepts and Organization Behavior	Hard	3
MBAF412	Financial System and Economic Development	Hard	3
MBAF413	Financial Statement Analysis and Reporting	Hard	3
MBAF414	Financial Services Marketing	Hard	3
MBAF415	Fundamentals of Data Analytics	Hard	3
MBAF416	R Programming	Hard	3
MBAF417	Database Systems and Big Data for Finance	Hard	4
MBAF418	IT Lab -1 Programming Lab using R	Hard	2
MBAF419	Fin Lab – 1 Soft Skill for Managers	Hard	2
Semester I Credits			26
SEMESTER II			
MBAF421	Financial Management	Hard	3
MBAF422	Design and Critical Thinking for Startups	Hard	3
MBAF423	FinTech EcoSystem	Hard	3
MBAF424	Machine Learning	Hard	3
MBAF425	Financial Technology Management	Hard	3
MBAF426	Business Intelligence	Hard	3
MBAF427	IT Lab -2: BI Lab	Hard	2
MBAF428	Fin Lab – 2: Securities Market Lab	Hard	2
MBAFXXX	Elective-I Paper-1	Soft	3
MBAFXXX	Elective-II Paper-1	Soft	3
Semester II Credits			28

SEMESTER III			
MBAF 511	International Financial Management	Hard	3
MBAF 512	Strategic Management	Hard	3
MBAF 513	Investment Analysis and Portfolio Management	Hard	3
MBAF 514	Fundamentals Information Security & Privacy	Hard	3
MBAF 515	System Analysis and Design	Hard	3
MBAF 516	IT Lab – 3: Development of Fintech Solutions using Agile methodology	Hard	2
MBAF 517	Fin Lab – 3: Corporate Finance Lab and Data Visualization	Hard	2
MBAF 519	FinTech Internship	Hard	3
MBAF 520	Project - Phase I	Hard	2
MBAF XXX	Elective-I Paper-2	Soft	3
MBAF XXX	Elective-II Paper-2	Soft	3
	Semester III Credits		30
SEMESTER IV			
MBAF XXX	Elective –I: Paper-3	Soft	3
MBAF XXX	Elective –I: Paper-4	Soft	3
MBAF XXX	Elective –II: Paper-3	Soft	3
MBAF XXX	Elective –II: Paper-4	Soft	3
MBAF 525	Project - Phase II & Viva	Hard	6
	Semester IV Credits		18
Total Credits			102
List of Softcore Courses - IT Stream			
MBAF 531	Smart Computing Technologies	Soft	3
MBAF 532	Data Science for Finance	Soft	3
MBAF 533	Software Project Management	Soft	3
MBAF 534	Artificial Intelligence	Soft	3
MBAF 535	Blockchain Technology	Soft	3
MBAF 536	Data Visualization and Reporting	Soft	3
MBAF 537	Cyber Security	Soft	3
MBAF 538	Information System Control and Audit	Soft	3

MBAF 539	Chatbots Development for Finance	Soft	3
MBAF 540	Social Media Analytics	Soft	3
MBAF 541	Robotic Process Automation	Soft	3
MBAF 542	UX Design	Soft	3
List of Softcore Courses - Finance Stream			
MBAF 543	Startup Financing	Soft	3
MBAF 544	Insurance and Risk Management	Soft	3
MBAF 545	Digital Business Transformation	Soft	3
MBAF 546	Human Resource Management	Soft	3
MBAF 547	Derivatives and Risk Management	Soft	3
MBAF 548	Financial Modeling	Soft	3
MBAF 549	Corporate Restructuring	Soft	3
MBAF 550	Forex and Currency Derivatives	Soft	3
MBAF 551	Corporate Governance & Business Ethics	Soft	3
MBAF 552	Lean start-up Management	Soft	3
MBAF 553	Sustainable Finance	Soft	3
MBAF 554	Decentralized Finance (DeFi)	Soft	3

BRIDGE COURSE – NON-CREDIT

NON-CREDIT BRIDGE COURSE			
Course Code	Subject	Course Type	Credit
MBAF 301	Basics of Business Environment	Hard – Non IT	Non-Credit
MBAF 302	Basics of Computer Programming	Hard – IT	Non-Credit
MBAF 303	Basics of Economics	Hard– Non IT	Non-Credit
MBAF 304	Basics of Problem-Solving Techniques	Hard - IT	Non-Credit

BRIDGE COURSE
MBAF 301: BASICS OF BUSINESS ENVIRONMENT

Hard Core Non-Credit

Learning Objectives:

1. To introduce concepts and topics related to basics of Business
2. To Provide an overview on Indian Industrial environment

Learning Outcome:

1. To understand and appreciate the concepts of Business and its environment
2. To acquire practical knowledge and understanding various policies and institutions

Methodology:

Lecture, Discussion and presentation

Topics to be covered:

- What is Business? Differences between Trade/Commerce/Aids to trade
- Nature of Business: Manufacturing–Services–trading–Banking–Commission-Agency, etc
- Types of Organizations– Sole trader – Partnership – Company form– Cooperatives
- Business Organizations – Company form – Formation – Board of Directors –
- Memorandum of Association– Articles of Association
- CompanyLaw–Provisions–FactoriesAct–CompetitionLaw–ConsumerProtection-Law
- Taxes–DirectTaxes–IndirectTaxes–CentralSalesAct–Octroi–Excise–Customs duties –GST
- Foreign Trade – Exports –Imports– Special Economic Zones– EOUs
- Top Business Houses– Product Concentration– Entry of MNCs
- Indian Banking– Public Sector Banks– Private Sector Banks–Foreign Banks– RBI– Credit creation by Banks– RBI Credit Policy

Text and Reference books

1. **Cherunilam, Francis. International business. PHI Learning Pvt. Ltd..**
2. Cherunilam, Francis. Business Environment. Text and Cases Himalaya.
3. KuchhalS.C. Industrial Economy of India, Sultan Chand & Co.
4. Dutt&Sundaram, IndianEconomy”, Sultan Chand & Co.
5. Maheswari S.N., IndianBanking Law & Practice, Kalyani, Latest

BRIDGE COURSE
MBAF 302: BASICS OF COMPUTER PROGRAMMING

Hard Core Non-Credit

Learning Objectives:

1. To understand basics of concepts of programming
2. To convert application logic to computer programs

Learning Outcomes:

1. Design programming constructs for various applications.
2. Develop programs for various applications

Methodology:

Lecture, assignments, presentation and hands-on practice

Topics to be covered:

- **Introduction to Programming:** Basic programming concepts and terminology, introduction to programming languages and their features.
- **Algorithms and Flowcharts:** Understanding of algorithms and their design, flowcharting, and pseudocode.
- **Variables and Data Types:** Understanding variables, data types, and their usage in programming languages.
- **Operators and Expressions:** Introduction to arithmetic, relational, logical, and bitwise operators, and their usage in expressions.
- **Control Structures:** Understanding of control structures such as if-else, switch-case, for loop, while loop, do-while loop, and their usage in programming.
- **Functions:** Definition and usage of functions, return types, passing parameters.
- **Arrays:** Understanding of arrays, declaration, initialization, and usage of arrays.
- **Object-Oriented Programming:** Introduction to object-oriented programming concepts such as classes, objects, inheritance, polymorphism, and encapsulation.
- **Debugging and Testing:** Exception Handling, Basic debugging techniques, testing, and debugging tools.
- **Problem Solving:** Hands-on experience in developing small programs and applications using programming languages.

Text and Reference books:

1. **Reema Thareja, Computer Fundamentals and Programming in C, Pearson.**
2. Bjarne Stroustrup, Programming: Principles and Practice using C++, Addison-Wesley Professional
3. Herbert Schildt, Java: The Complete Reference, Oracle Press.
4. John M Zelle , Python Programming – An Introduction to Computer Science, Academia.
5. Nick Samoylov, Introduction to Programming, Packt publishers.

BRIDGE COURSE
MBAF 303: BASICS OF ECONOMICS

Hard Core Non-Credit

Learning Objectives:

1. To introduce concepts and topics related to Economics and Banking
2. To Provide an overview Micro and Macro Economics

Learning Outcomes:

1. Understand and appreciate the concepts of Economics and Banking
2. Acquire practical knowledge and understanding Micro and Macro Economics

Methodology:

Lecture, Discussion and presentation

Topics to be covered:

- Economic Logic and Different Concepts of Economics
- Theory of Firm and Concept of Profit Maximization
- Factors of Production and Market Mechanism
- Production and Consumption Theories
- Cost and Revenue Curves and Break-Even Analysis
- Market Structures and Basic Characteristics
- Pricing of Factors of Production and Pricing Policies
- Macro Economics, Concept of GDP and National Income
- Functions of Money, Demand for Money and Supply
- Interest Rate, Inflation, Aggregate Income
- General Theory of Income and Employment
- Real Market and Money Market Equilibriums
- Wealth of Nations and International Trade
- Trade Cycles, Growth and Welfare state
- Open Economy, Globalization

Text and Reference Books:

1. **Mankiw, N. Gregory. Principles of economics. Cengage Learning, 2020.**
2. Thomas, Christopher R., S. Charles Maurice, and Sumit Sarkar, Managerial economics, McGraw-Hill.
3. Marshall, Alfred, Principles of economics, Digireads. com Publishing.
4. Kajal Laturi, G.S.Maddala, Introduction to econometrics,
5. Paul Anthony Samuelson, William D Nordhaus, Economics, Mc. Graw Hill.

BRIDGE COURSE
MBAF 304: BASICS OF PROBLEM-SOLVING TECHNIQUES

Hard Core Non-Credit

Learning Objectives:

1. To identify the fundamental problem solving.
2. To know the basics of algorithms, data organization and algorithms.

Learning Outcomes:

1. Explain the basic computational thinking and problem solving.
2. Develop algorithmic solution to problem solving

Methodology:

Lecture, Discussion and presentation

Topics to be covered:

Computational Thinking - Logic-Solving Problems- Pseudocode & Flow Chart

Algorithms

Exchanging - Counting – Summing - Factorial Computation – Fibonacci Sequence - Reversing the Digit-Base Conversion - Character to number conversion. Factoring Methods: Finding Square Root - Greatest Common Divisor - Prime Number - Prime Factor - Pseudo Random Number - Raising to Large Power - Computing nth Fibonacci number.

Array Techniques

Introduction - Array order reversal - Array Counting or Histogramming – Maximum and Minimum of a Set - Removal of Duplicate – Partitioning - Longest monotone. Merging sorting and searching: Two Way Merge - Sorting by Selection, Insertion, Exchanging, Diminishing, Increment, and Partitioning. Searching: Binary – Hashing.

Text processing

Key word Searching - Text Line Adjustment - Linear Pattern Search - Sub Linear Pattern Search.

Recursion

Binary Tree Traversal - Recursive Quick Sort - Towers of Hanoi - Sample Generation -Combination Generation - Permutation Generation.

Text and Reference Books:

1. **David Riley and Kenny Hunt, Computational Thinking for Modern Problem Solver, Chapman & Hall / CRC Press.**
2. R. G.Dromey, How to solve it by Computer, PHI.
3. Vickers Paul, How to Think like a Programmer: Problem Solving for the Bewildered, Cengage Learning.
4. V. Anton Spraul, Think Like a Programmer: An Introduction to Creative Problem Solving, Cengage Learning.
5. Harold Abelson & Gerald Jay Sussman, Structure and Interpretation of Computer Programs, McGraw- Hill.

SEMESTER I			
Course Code	Subject	Course Type	Credit
MBAF411	Management Concepts and Organization Behavior	Hard	3
MBAF412	Financial System and Economic Development	Hard	3
MBAF413	Financial Statement Analysis and Reporting	Hard	3
MBAF414	Financial Services Marketing	Hard	3
MBAF415	Fundamentals of Data Analytics	Hard	3
MBAF416	Fundamentals of Programming	Hard	3
MBAF417	Database Systems and Big Data for Finance	Hard	4
MBAF 418	IT Lab -1 Programming Lab using R	Hard	2
MBAF 419	Fin Lab – 1 Soft Skills	Hard	2
		Semester I Credits	26

SEMESTER I

MBAF411: MANAGEMENT CONCEPTS & ORGANIZATIONAL BEHAVIOUR

Hard Core: 3 Credits

Learning Objectives:

1. To impart the modern management concepts, theories, and practices.
2. To make the students apply management concepts and practices for decision making.

Learning Outcomes:

1. Create the ability to deal with day-to-day managerial functions.
2. Apply the management concepts, tackle the complex problems relating to management.

Methodology:

Lecture, Discussion, Case studies, observations, presentation, role plays, problem and games

Unit-I: Introduction:

Technology based business organization and projects-Evolution of Management- Modern era –system & contingency approach -Managerial Skills – Development of a modern technology-based company- New organizational capabilities –Ethics and Social responsibility.

Unit-II: Planning-

Planning in digital firms- Theories – Policies – Process - Strategic planning process-Decision making-Policies and Strategies - Scope and Formulation - Decision Making - Types, Techniques and Processes. Group Dynamics-Characteristics-Stages-Types -MBO.

Unit-III: Organization Structure and Design:

Organizational levels-Types and structures-Designing organization structure-Span of management-Departmentalisation- Impact of Technology on Organizational design -Mechanistic vs Adaptive Structures -Formal and Informal Organization.

Unit-IV: Communication and Negotiation:

Theories of communication- Models of communication- Organizational context of communication -Barriers-Listening- Improving listening- Groups and Teams- Formation and Development- Managing groups- Good negotiation- Factors in effective negotiation.

Unit-V: Controlling and Organizational Change:

Control functions- Control process- Control effectiveness-Operations management-Quality control-Japanese Management Practices-Organizational change-Change Process- Managing Change- -Approaches to change-Overcoming resistance to change.

Text and Reference Books:

1. Robbins, Stephen P., and Mary Coulter, Management. Pearson India.
2. Michael A.Hitt,J Stewart Black & Layman W.Porter., Management, Pearson India.
3. Rudani, Ramesh B., Principles of management, McGraw-Hill Education.
4. Kondalkar, V. G., Organizational Behavior, New Age.
5. Prasad, L. M., Principles and practice of management, Sultan Chand & Co.

SEMESTER I
MBAF412: FINANCIAL SYSTEM AND ECONOMIC DEVELOPMENT

Hard Core: 3 Credits

Learning Objectives

1. To introduce concepts and theories related to Financial System in India
2. To facilitate the application of the concepts and theories into practice in the BFSI sectors

Learning Outcomes:

1. Understand and appreciate the concepts of Financial institution, markets and services
2. Acquire required knowledge and demonstrate skills sets required for BFSI sectors

Methodology:

Lecture, Discussion, Case studies, Presentation, Role plays and Management games

Unit I: Introduction:

Financial Sector Reforms - Monetary Policy - Instruments and its role in economy - Structure of Financial System – Financial Market Instruments and Institutions - Money Market Vs. Capital Market – Primary and Secondary Securities - Innovative Instruments - Financial Services – Fund Vs. Fee based services - Mutual Funds.

Unit II: Capital Markets and Instruments -

Functions and Structure - Primary and Secondary market - Mechanism-instruments and financing - Regulatory Framework- SEBI Regulations - Stock Exchanges - Bond Market - Debt Market in India - Government Securities- Corporate Bond Market - Recent Developments - Derivatives Market – Currency and Commodity markets.

Unit III: Indian Banking System:

Banking pre and post-independence – Banking and Non-banking institutions - Commercial Banking and its classification – RRBs and Cooperative Banks - Small Finance Banks and Payment Banks - Credit creation and deployment by banks - Development Banking – Investment banking – Merchant banking - Lead Bank.

Unit IV: Financial System and Economy in the Long-term Perspective:

Role of the financial system in mobilization of savings and promoting productive investment: resolving maturity and size mismatch, risk diversification – information asymmetry, credit appraisal, pricing risk and monitoring – efficient resource allocation; financial system and the payments and settlement systems

Unit V: Financial System and Macroeconomic Management:

Economic fluctuations and macroeconomic management – channels of monetary transmission: role of the banks and financial markets; fiscal policy and financing government borrowing: necessity of a well-functioning financial system.

Text and Reference Books:

1. **Khan M.Y, Financial Services, Tata McGraw Hill.**
2. Thummuluri Siddaiah, Financial Services, Pearson India.
3. Meir Kohn, Financial Institutions and Markets, McGraw Hill Publishing.
4. Bhole M.K., Financial Markets and Institutions, Macmillan Publishing Co.
5. Auerbach Robert D., Finance Markets and Institutions, Macmillan Publishing Co.

SEMESTER I
MBAF413: FINANCIAL STATEMENT ANALYSIS AND REPORTING

Hard Core 3 Credits

Learning Objectives

1. To introduce concepts and theories related to Financial Statement analysis & Reporting
2. To facilitate the application of financial statement analysis techniques and tools.

Learning Outcomes:

1. Understand and appreciate the concepts of Financial statements analysis and reporting methods
2. Acquire practical knowledge and application over financial statement analysis of a company.

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, and mini projects

Unit - I: Introduction:

Nature & objectives of Financial Statements, Uses & Limitations of Financial Statements, Stakeholders of financial statements, Preparation of Financial Statements - Income Statement and Balance Sheet.

Unit - II: Analysis of financial statements:

Tools and Techniques of Financial Statement Analysis – Preparation of Comparative & Common size statements and Trend analysis.

Unit - III: Ratio analysis:

Profitability ratios-Liquidity ratios- Solvency ratios- Turnover ratios- DuPont control chart. KPI's of Banking Companies – Various profitability and Performance Ratios of an Banking Companies

Unit - IV: Cash Flow Analysis:

concepts and types – Calculation of working capital - Types of working capital – meaning of Cash Flow Analysis – Calculation of Operating Cash Flow, Investment Cash Flow & Financing Cash Flow – Preparation of overall Cash flow statement – Meaning of Digital cash flow – Computation of Digital cash flow.

Unit - V: Marginal Cost Analysis and Reporting:

Profit-volume Ratio – Break-even analysis – Margin of Safety – other marginal cost equations - Managerial applications of marginal costing techniques. Emerging concepts in accounting and Financial Statement analysis – ERP- New accounting standards– Report preparation of financial statement analysis - IFRS- eXBRL - Window dressing - Recent scandals in financial reporting.

Text and Reference Books:

1. Maheswary S N, Management Accounting, Sultan Chand & Sons.
2. Gupta R L and Radhaswami M, Advance Accounts, Sultan Chand & Sons.
3. Jain S P and K L Narang, Advanced Accounts, Kalyani Publishers.
4. Jain S P and K L Narang, Cost Accounts, Kalyani Publishers.
5. Shukla M C and Grewal T S, Advanced Account, S Chand & Co.

SEMESTER I
MBAF 414: FINANCIAL SERVICES MARKETING

Hard Core: 3 Credits

Learning Objectives:

1. To supplement basic focusing on problems and strategies specific to marketing of financial services.
2. To Identify and analyze marketing issues faced by financial services organizations

Learning Outcomes:

1. Understanding service blueprint and its application across various financial services
2. It enables the students about the marketing and branding of banking and financial services.

Methodology:

Lecture, Discussion, Case studies, and Assignments

Unit I: Financial Services:

Concepts - categories of financial services - financial services marketing environment - Financial literacy – challenges facing financial consumers in financial decision-making - Classical Concept of Marketing and the 7P of Marketing Mix - Marketing Research-Regulatory Framework of Financial Services in India.

Unit II: Marketing of Financial Services:

Marketing mix of financial services - financial products development strategies - Analyzing marketing strategies adopted by selected banks and other financial service providers - The role of technology in financial services - STPs of Marketing - Marketing of Banking Services and Insurance Companies – Marketing strategy of credit cards, debit cards, saving accounts and different types of loans - Moral and ethical issues in financial services marketing practice

Unit III: Branding in Financial Services Sector:

Building and sustaining the financial services brand - Target Marketing & Customer Retention, Significance of Financial Brands, Targeting and Positioning Strategies - Promoting Financial Services - Impact of Branding on Customer Perception towards Financial Service Providers, Creation of a Financial Brand – Role of Credit Rating Agencies to create branding - Pricing and price-based competition - Pricing and value in financial services

Unit IV: Marketing Strategies of Financial Institutions:

Formulating a Marketing Strategies for Banks and Financial Institutions, Implementing Marketing Strategy - The Roles of Advertising- Advertising Channels- Promotions- Publicity- The Contribution of Advertising and Communications to Marketing Programmes of Financial Institutions - Administering the Marketing Programme- Administration of Retail V. Corporate Financial Markets

Unit V: Customer Satisfaction and Service Quality:

Monitoring and Measuring customer satisfaction, GAP Model – Handling complaints effectively – Service Failure – Recovery, Use of Internet in Service Marketing - Marketing through social networking channels

Text and References:

1. M.Y Khan Financial Services, TATA McGraw Hill.
2. Puneet More, Suvidha Chaplot, Marketing Of Financial Services, Tata Mc.Graw Hill.
3. Christine Ennew, Trevor Watkins Mike Wright, Marketing Financial Services, Routledge.
4. Arthur Meidam, Marketing Financial Services, Macmillan.
5. Harrison, Tina, Financial Services Marketing, Pearson Education.

SEMESTER I
MBAF 415: FUNDAMENTALS OF DATA ANALYTICS

Hard Core 3 Credits

Learning Objectives

1. To introduce statistical tools and techniques to facilitate the decision making
2. To facilitate the application of the statistical tools and techniques for analysis and estimation.

Learning Outcomes:

1. Make the students to familiarize with statistical tools and techniques
2. Create the experts of data analytics to facilitate decision making by using statistical tools and techniques.

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, and mini projects

Unit – I: Probability:

Introduction – Terminology – Types of Probability – Rules – Probabilities under conditions of statistical independence – Probabilities under conditions of statistical dependence - Probability Distribution – Random variables - Binomial Distribution – Poisson Distribution – Normal Distribution

Unit – II: Sampling:

Sampling - Meaning – Types – Design of Experiments – Introduction to Sampling Distribution.

Unit – III: Hypothesis Testing:

Testing of Hypothesis: One Sample Test – Introduction – Concepts Basics to the Hypothesis Procedure – Testing of Hypothesis –Hypothesis Testing of Means when the Population Standard Deviation is Known – Measuring the Power of a Hypothesis Test – Hypothesis Testing of Proportions: Large Samples – Hypothesis Testing of Means when the Population Standard Deviation is Not Known – Testing of Hypothesis: Two Sample Tests – Hypothesis Testing for Differences between Means and Proportions – Tests for Differences between Means: Large Sample Sizes – Tests for Difference between Means: Small Sample Sizes – Testing Differences between Means with Dependent Samples – Tests for Differences between Proportions: Large Sample Sizes

Unit – IV: Non-Parametric Testing:

Chi – Square and Analysis of Variance (ANOVA) – Introduction – Chi – Square as a Test of Independence – Chi – Square as a Test of Goodness of Fit: Testing the appropriateness of a Distribution – Analysis of Variance (ANOVA) – Inferences about a Population Variance – Inferences about Two Population Variances.

Unit – V: Regression and Correlation Analyses:

Simple Regression and Correlation – Introduction – Estimation using the Regression Line – Correlation analysis – Making inferences about Population Parameters – Using Regression and Correlation Analyses: Limitations, Errors, and Caveats.

Text and Reference Books:

1. Levin. Richard. I and Rubin. David. S, **Statistics for Management, Prentice-Hall.**
2. Gupta. S.P, Statistical Methods, Sultan Chand & Sons.
3. Arora & Arora, StatisticsforManagement, S Chand & Co.
4. Hooda, R. P, Statistics for business and economics, Vikas Publishing House.
5. Davis, Glyn, and BrankoPecar, Business statistics using Excel, Oxford University Press.

SEMESTER I
MBAF 416: R PROGRAMMING

Hard Core 3 Credits

Learning Objectives

1. To Learn Fundamentals of R Programming
2. To learn Basics of statistical data analysis using statistical functions.

Learning outcomes:

1. Understand the basics of R.
2. Understand the loading, retrieval techniques of data.

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

UNIT I: Introduction to R:

Fundamentals of R - Advantages of R over Other Programming Languages - R Studio: R command Prompt, R script file, comments – Handling Packages in R: Installing a R Package, – Entering Data from keyboard – Special Values functions.

UNIT 2: R Data Types:

Vectors, Lists, Matrices, Arrays, Factors, Data Frame – R - Variables: Variable assignment, Data types of Variable, Finding Variable, Deleting Variables - R Operators: Arithmetic Operators, Relational Operators, Logical Operator, Assignment Operators, Miscellaneous Operators - R Decision Making: if statement, if – else statement, if – else if statement, switch statement – R Loops: repeat loop, while loop, for loop - Loop control statement: break statement, next statement.

UNIT 3: R-Function :

Function definition, Built in functions, user-defined function, calling a function, calling a function without an argument, calling a function with argument values - R-Strings – Manipulating Text in Data - R Vectors – Sequence vector, rep function, vector recycling- R List - R Matrices - R Arrays - R Factors –creating factors, generating factor levels.

UNIT 4: Data Frames:

Create Data Frame, Dataframe Access, Data management with Data frames- Loading and handling Data in R: Getting and Setting the Working Directory –CSV Files - Input as a CSV file, Reading a CSV File, Analyzing the CSV File: Writing into a CSV File – R -Excel File – Reading the Excel file.

UNIT 5: Descriptive Statistics:

Data Range, Frequencies, Mode, Mean and Median: Mean Applying Trim Option, Applying NA Option, Median - Mode - Standard Deviation – Correlation - Spotting Problems in Data with Visualization: visually Checking Distributions for a single Variable - R –Pie Charts: Pie Chart title and Colors – Slice Percentages and Chart Legend, 3D Pie Chart – R Histograms – Density Plot - R – Bar Charts: Bar Chart Labels, Title and Colors. Usage of Tidyverse, Tidy dplyr, carret, Tidyquant, digest, e1071 package.

Text and Reference Books

1. **Sandip Rakshit, R Programming for Beginners, McGraw Hill Education.**
2. Wickham, H. Golemund, G. R for Data Science, O'Reilly.
3. Hadley Wickham, Advanced R, CRC.
4. Seema Acharya, Data Analytics using R, McGrawHill Education.
5. Andrie de Vries, Joris Meys, R for Dummies, Wiley.

SEMESTER I
MBAF 417: DATABASE SYSTEMS AND BIG DATA FOR FINANCE

Hard Core: 4 Credits

Learning Objectives:

1. To learn the fundamentals and issues in database systems and design of databases using relational models
2. To learn data definition and query languages, transaction management, Big data.

Learning Outcomes:

1. Understand and appreciate the concepts of information system, database systems and bigdata
2. Acquire knowledge required for developing a back-end database for a financial information system.

Methodology:

Lecture, Discussion, Case studies, observations, presentation and Exercises

Unit I: Financial Information System:

Information and its role in business-Information systems-components- Types of Information. Introduction to Database Systems: Data-Database Applications -Evolution of Database -Need for Database Management - Data models-Database Architecture –Key Issues and Challenges in Database Systems-Database Administration.

Unit II: ER and Relational Models:

ER Models-ER to Relational Mapping-Object Relational Mapping - Relational Model Constraints - Keys - Dependencies - Relational Algebra - Normalization -First, Second, Third & Fourth Normal Forms-BCNF-Join Dependencies.

Unit III: Data Definition and Querying:

Basic DDL-Introduction to SQL-Data Constraints -Advanced SQL-Views-Triggers- Database Security-Embedded & Dynamic SQL

Unit IV: Transactions and Concurrency:

Introduction to Transactions - Transaction Systems-ACID Properties -System & Media Recovery –Need for Concurrency –Locking Protocols-SQL for Concurrency- Log Based Recovery -Two Phase Commit Protocol - Recovery with SQL- Deadlocks & Managing Deadlocks.

Unit V: Overview of Big data:

Best Practices for Big data Analytics -Big data characteristics--Big Data Use Cases-Characteristics of Big Data Applications - Understanding Big Data Storage-A General Overview of Hadoop EcoSystem- HDFS- Map Reduce and YARN-Map Reduce Programming Model-Case studies in Banking and Finance.

Text and Reference Books

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, Database System Concepts, Tata McGraw Hill.
2. RamezElmasri, Shamkant B. Navathe, Fundamentals of Database Systems, Pearson.
3. Data, John, Data Science & Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Wiley.
4. C.J. Date, A. Kannan and S. Swamynathan, An Introduction to Database Systems, Pearson Education.
5. Raghu Ramakrishnan, Database Management Systems, McGraw Hill.

SEMESTER I
MBAF 418: IT LAB -1 PROGRAMMING LAB USING R

Hard Core: 2 Credits

Learning Objectives:

1. To introduce programming in R.
2. To facilitate the students to learn advanced skills in Python and R.

Learning Outcomes:

1. Enhance basic Programming skills both in Python and R
2. Develop advanced programming skills like OOPS, Databases, Web services, machine learning in R.

Methodology:

Exercises and Projects.

List of indicative exercises

- 1) Create, print, and add column and slice matrix using R programming
- 2) Write R programming to use and understand data frames, lists, and functions
- 3) Write R programming to use and understand conditional and loop statements
- 4) Write R programming to import and export data from different file formats.
- 5) Write R programming to use and understand various statistical functions
- 6) Write R programming to use data visualization functions.

Text and Reference Books

1. **Eric Pimpler, Data Visualization and Exploration with R A Practical Guide to Using R RStudio and Tidyverse for Data.**
2. Hadley Wickham, Advanced R, CRC.
3. Hadley _Wickham, R for data science: Import, Tidy, Transform, Visualize, and Model Data, O'Reilly.

SEMESTER I
MBAF 419: FIN LAB - 1 SOFT SKILLS FOR MANAGERS

Soft core: 2 Credits

Learning Objectives

1. *To have hands on experience to learn MS Excel and SPSS*
2. *To facilitate the application of the MS Excel and SPSS for forecasting and estimation*

Learning Outcomes:

1. *Make the students to familiarize with econometric tools and techniques*
2. *Expertise decision making by using econometric tools and techniques.*

Methodology:

Lecture, Discussion, Exercise, and Mini project.

Unit – I: Data Management using MS Excel and SPSS

Unit – II: Frequency Distribution, Mean, Mode, Median and Coefficient of Variances

Unit –III: Descriptive Statistics and T-tests

Unit – IV: Testing of Hypothesis, Chi-Square, ANOVA

Unit – V: Correlation and Regression

Text and References:

1. **Levin. Richard. I and Rubin. David. S, Statistics for Management, Prentice-Hall.**
2. Brooks, Chris., Introductory Econometrics for Finance, Cambridge University Press.
3. Hair, Anderson, Tatham and Black., Multivariate Data Analysis, Pearson Education.
4. Wooldridge M., Introductory Econometrics: A Modern Approach, Cengage Learning.
5. Damodar Gujarati, Dawn C Porter, and Manoranjan Pal, Basic Econometrics, Mc. Graw Hill.

SEMESTER II			
Course Code	Subject	Course Type	Credit
MBAF 421	Financial Management	Hard	3
MBAF 422	Design and Critical Thinking for Startups	Hard	3
MBAF 423	FinTech EcoSystem	Hard	3
MBAF 424	Machine Learning	Hard	3
MBAF 425	Financial Technology Management	Hard	3
MBAF 426	Business Intelligence	Hard	3
MBAF 4XX	Elective-I Paper-1	Soft	3
MBAF 4XX	Elective-II Paper-1	Soft	3
MBAF 427	IT Lab -2: BI Lab	Hard	2
MBAF 428	Fin Lab – 2 : Securities Market Lab	Hard	2
		Semester II Credits	28

SEMESTER II
MBAF 421: FINANCIAL MANAGEMENT

Hard Core: 3 Credits

Learning Objectives

1. To introduce the concepts and theories related to Financial Planning and financial functions
2. To facilitate the learning of financial decisions

Learning Outcomes:

1. Understand and appreciate the concepts of Corporate Financial Functions
2. Acquire practical knowledge and application over financial decisions

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, and mini projects

Unit I: Financial Management:

Introduction, Meanings and Definitions, Goals of Financial Management, Finance Functions - Financial Planning - Time Value of Money: Introduction, Rationale, Future Value, Present.

Unit II: Cost of Capital:

Introduction, Meaning of Cost of Capital, Cost of Different Sources of Finance, Weighted Average Cost of Capital - Leverage: Introduction, Operating Leverage, Application of operating leverage, Financial Leverage, Combined Leverage - Capital Structure: Introduction, Features of an Ideal Capital Structure, Factors Affecting Capital Structure, Theories of Capital Structure.

Unit III: Capital Budgeting:

Introduction, Importance of Capital Budgeting, Complexities Involved in Capital Budgeting Decisions, Capital Budgeting Process, Investment Evaluation, Appraisal Criteria - Capital Rationing: Introduction, Types, Steps Involved in Capital Rationing, Various Approaches to Capital Rationing.

Unit IV: Leasing Financing and Dividend Decision:

Introduction – Meaning and essential – Classification – Financial lease – Operating lease – Sales and lease back – Indirect lease; - Dividend Decisions: Introduction, Traditional Approach, Dividend Relevance Model, Miller and Modigliani Model, Stability of Dividends, Forms of Dividends, Stock Split

Unit V: Working Capital Management:

Introduction, Components of Current Assets and Current Liabilities, Concepts of Working Capital, Objective of Working Capital Management, Need for Working Capital, Operating Cycle, Determinants of Working Capital, Approaches for Working Capital Management, Estimation of Working Capital - Cash Management - Inventory Management - Receivable Management.

Text and Reference Books

1. Khan MY, Jain PK., **Financial Management**, Tata Mc Hill.
2. Pandey I M., **Financial Management**, Vikas Publishing House.
3. Chandra, Prasanna: **Financial Management**, Tata McGraw Hill.
4. Van Horne, James C: **Financial Management and Policy**, Prentice Hall.
5. Brigham, Eugene and Ehrhardt C Michael., **Financial Management: Theory and Practice**, Prentice Hall.

SEMESTER II

MBAF 422: DESIGN AND CRITICAL THINKING FOR STARTUPS

Hard Core: 3 Credits

Learning Objectives:

1. To explain the concept of design thinking for product and service development
2. To describe the fundamental concept of innovation and design thinking

Learning Outcomes:

1. Understand the process of generating and develop design ideas through different technique
2. Develop various design process procedure for new product / service

Methodology:

Lecture, Discussion, Case studies, observations, presentation, and mini projects

Unit I: Entrepreneurship & Start-Ups

Evaluating Entrepreneurial Career Options and Startup Opportunities - Overview of Entrepreneurship – Types of Entrepreneurships - The Entrepreneur’s Role, Task and Personality - Entrepreneurial Traits - Evaluating New-Business Opportunities and Start-ups – Start-ups Ecosystem – Various Initiatives of Governments - Start-ups success stories.

Unit II: Creativity

Principles of Creativity – Lower and Higher-level creativity – Creativity Tools – Brainstorming - application of brainstorming tools in group activities - different types of brainstorming techniques.

Unit III: Creative Thinking

Thinking Styles – Different thinking styles – Principles of various Thinking styles - Individual and Group level thinking approaches - Principles of Morphological Analysis and how to apply for plot line and more systematic approach to idea generation - theory of inventive problem solving (TRIZ) - Introduction to TRIZ and its Tools - concepts of SCAMPER and its application in various unusual, personal or professional situations, whilst inspiring related ideas

Unit IV: Design Thinking Innovation

Design Thinking for business innovation - Building New Product using Critical Thinking and Design Strategy – Real examples of organisations using Design Thinking - Embedding Design strategy with Business Strategy - Defining and Testing Business Models and Business Cases - The impact of Design Thinking for Business Innovation - Insights to Inspiration - Preparing our mind using Storytelling tool – Idea Generation using Mind mapping tools

Unit V: Design Thinking Process

Navigate the design thinking process to tackle a human-centered problem - Craft out an effective research plan - Draw key insights from the design process to arrive at ideal solutions – Use Visualization tool for Challenge / problem identification - Ideas to action - turn insights gathered during the design thinking process into action - generate solutions and turn ideas into key concepts - move from ideation to experimentation - important design thinking tools to generate ideas - connect with customers - Experiencing Design - Deepening Your Design Thinking Practice - Navigate six key phases of design thinking - Immersion, Sensemaking, Alignment, Emergence, Imagining, and Learning in Action - develop a Personal Development Plan (PDP) to chart your progress – Experimentation.

Text and Reference Books:

1. **Tim Brown, Clayton M. Christensen, Indra Nooyi, Vijay Govindarajan’s, HBR's 10 Must Reads on Design Thinking, Harvard Business Review Press**
2. Roger L. Martin’s, The Design of Business: Why Design Thinking is the Next Competitive Advantage, Harvard Business Review Press
3. Albert Rutherford, Models for Critical Thinking, Independently Published
4. Brown, Tim’s, Change by Design, Harper Business (Publisher)

SEMESTER II
MBAF 423: FINTECH ECOSYSTEM

Hard Core: 3 Credits

Learning Objectives

1. To understand the key technologies and trends driving innovation in the FinTech
2. To understand regulatory frameworks for FinTech

Learning Outcomes:

1. Comprehensive understanding of the key technologies and trends driving innovation in the FinTech industry
2. To evaluate the regulatory frameworks that apply to FinTech

Methodology:

Lecture, Discussion, Case studies, observations, presentation, role plays, problem and games

Unit I: Introduction to FinTech:

The history of FinTech and its evolution over time- Changing Payment Landscape- Defining FinTech and its impact on the financial industry- FinTech products and services- FinTech and its key characteristics -The role of technology and innovation in the FinTech

Unit II: The FinTech Ecosystem:

Various players in the FinTech ecosystem- roles and responsibilities of each player in the FinTech ecosystem- The importance of collaboration and partnerships in the FinTech ecosystem- Types of FinTech products and services- The benefits of FinTech products-Challenges of FinTech

Unit III: FinTech Infrastructure:

Blockchain- cryptocurrencies and digital identity-Artificial Intelligence (AI)- How AI is used in FinTech, including in fraud detection and risk management- Cloud Computing in FinTech - Data in FinTech- Data in FinTech-Payment Systems- various players involved in payment systems

Unit IV: FinTech Regulatory System:

The role of regulators in overseeing the FinTech industry- The various regulatory frameworks- Regulations regarding banking, securities, and consumer protection- Role of Central Banks- Securities Regulation in FinTech- Global Regulatory Trends in FinTech

Unit V: FinTech Around the World:

The state of the FinTech industry- The key players and subsectors of FinTech markets, including mobile banking, remittances, and microfinance- The regulatory and market conditions for the development of FinTech-Ethical and social considerations related to financial inclusion, data privacy, and social impact.

Text and Reference Books:

1. Gupta, Pranay, and T. Mandy Tham., **Fintech: the new DNA of financial services**, Walter de Gruyter GmbH & Co KG.
2. Bril, Herman, Georg Kell, and Andreas Rasche, eds., **Sustainability, technology, and finance: Rethinking how markets integrate ESG**, Taylor & Francis.
3. Amalia, Fitri., **The fintech book: The financial technology handbook for investors, entrepreneurs and visionaries**. Journal of Indonesian Economy and Business.
4. Mention, Anne-laure, and Dimitrios G. Salamasis, eds., **Transformation Dynamics in FinTech: An Open Innovation Ecosystem Outlook**, World Scientific.
5. Shrier, David L., and Alex Pentland, eds., **Global Fintech: Financial Innovation in the Connected World**, MIT Press.

SEMESTER II
MBAF 424: MACHINE LEARNING

Hard Core: 3 Credits

Learning Objectives:

1. To understand the concepts of machine learning
2. To appreciate supervised and unsupervised learning and their applications
3. To understand the theoretical and practical aspects of Probabilistic Graphical Models.

Learning Outcomes: Upon completion of this course, the student should be able to

1. Design a neural network for an application of your choice
2. Implement probabilistic, discriminative and generative algorithms for an application.

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: INTRODUCTION

Machine Learning- Machine Learning Foundations-Overview - Design of a Learning system – Types of machine learning -Applications Mathematical foundations of machine learning-random variables and probabilities -Probability Theory Probability distributions -Decision Theory- Bayes Decision Theory -Information Theory

Unit II: SUPERVISED LEARNING

Linear Models for Regression –Linear Models for Classification –Naïve Bayes -Discriminant Functions -Probabilistic Generative Models - Probabilistic Discriminative Models- Bayesian Logistic Regression. Decision Trees - Classification Trees- Regression Trees- Pruning. Neural Networks-Feed forward Network Functions -Back-propagation. Support vector machines -Ensemble methods - Bagging – Boosting – Random Forest.

Unit III: UNSUPERVISED LEARNING

Clustering- K-means – K – medoids – K- modes –EM Algorithm- Mixtures of Gaussians. The Curse of Dimensionality –Dimensionality Reduction -Factor analysis – Principal Component Analysis-Probabilistic PCA-Independent components analysis

Unit IV: PROBABILISTIC GRAPHICAL MODELS

Graphical Models-Undirected graphical models - Markov Random Fields - Directed Graphical Models -Bayesian Networks -Conditional independence properties -Inference - Learning- Generalization - Hidden Markov Models-Conditional random fields (CRFs)

Unit V: DEEP LEARNING

Sampling –Basic sampling methods - Monte Carlo. Reinforcement Learning- K-Armed Bandit- Elements-Model-Based Learning- Value Iteration- Policy Iteration. Temporal Difference Learning- Exploration - Convolutional Neural Networks (CNN) – Image Classification – Text Classification- Hyper parameter tuning – YOLO - Recurrent Neural Network – LSTM – Time Series Forecasting. - Advanced Deep Learning Algorithms – Finance Case Studies.

Text and Reference Books

1. **Christopher Bishop, Pattern Recognition and Machine Learning, Springer.**
2. Kevin P. Murphy, Machine Learning: A Probabilistic Perspective, MIT Press.
3. Ethem Alpaydin, Introduction to Machine Learning, MIT Press.
4. Tom Mitchell, "Machine Learning", McGraw-Hill.
5. Stephen Marsland, Machine Learning - An Algorithmic Perspective, Chapman and Hall/CRC Press.

SEMESTER II
MBAF 425: FINANCIAL TECHNOLOGY MANAGEMENT

Hard Core: 3 Credits

Learning Objectives:

1. To understand the technological trends, including cryptocurrencies, Blockchain, AI and Big Data.
2. To understand FinTech Regulation and RegTech.

Learning Outcomes:

1. Knowledge in FinTech, Digital finance and RegTech.
2. Business and regulatory implications of technology for the financial industry.

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit 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.

Unit II: Payment Systems

Payments, Crypto currencies and Blockchain – Introduction - Individual Payments –Digital Financial Services – Mobile Money – Regulation of Mobile Money – SFMS - RTGS - NEFT –NDS Systems – Crypto currencies – Legal and Regulatory Implications of Crypto currencies –What is Blockchain? – The Benefits from New Payment Stacks

Unit III: Digital Finance and Alternative Finance

Introduction – Brief History of Financial Innovation – Digitization of Financial Services - FinTech & Funds-Crowdfunding– Regards, Charity and Equity - P2P and Marketplace Lending – New Models and New Products - What is an ICO

Unit IV: FinTech Regulation and RegTech

Introduction - FinTech 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 Case of AI in Smart Regulation and Fraud Detection – Regulatory Sandboxes – Smart Regulation – Redesigning Better Financial Infrastructure

Unit V: Data & Technology

Introduction - History of Data Regulation – Data in Financial Services –Application of Data Analytics in Finance - Methods of Data Protection: GDPR Compliance and Personal Privacy – How AI is Transforming the 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

Text and Reference Books

1. **Agustin Rubini, Fintech in a Flash: Financial Technology Made Easy, Zaccheus.**
2. Susanne Chishti and Janos Barberis, The FINTECH Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries, Wiley.
3. Theo Lynn, John G. Mooney, Pierangelo Rosati, Mark Cummins, Disrupting Finance: FinTech and Strategy in the 21st Century, Palgrave.
4. Abdul Rafay, FinTech as a Disruptive Technology for Financial Institutions, IGI Global.
5. Bernardo Nicoletti, The Future of FinTech: Integrating Finance and Technology in Financial Services, Palgrave Macmillan.

SEMESTER II
MBAF 426: BUSINESS INTELLIGENCE

Hard Core: 3 Credits

Learning Objectives:

1. To learn the fundamentals of Business Intelligence.
2. To learn the advanced concepts in BI, data warehouse, and data mining technologies.

Learning Outcomes:

1. Students will able to analyze the given data using BI techniques
2. Students can able to prepare reports for decision making purpose

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: Business Intelligence :

Effective and timely decisions – Data, information and knowledge — Business intelligence architectures: Cycle of a business intelligence analysis – Enabling factors in business intelligence projects –Data Warehousing and Business Analysis: - Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata – reporting – Query tools and Applications – OLAP -- Interface of BI with organization capability

Unit II: Knowledge Discovery - Data Mining:

Data Mining Functionalities – Data Preprocessing – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation. Association Rule Mining: - Efficient and Scalable Frequent Item set Mining Methods – Mining Various Kinds of Association Rules – Association Mining to Correlation Analysis – Constraint-Based Association Mining. Data Mining tools, Market Basket Analysis, Management Applications CRM, Data Visualization and Multidimensionality GIS and Business applications.

Unit III: Classification and Prediction:

Issues Regarding Classification and Prediction – Classification by Decision Tree Introduction – Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction – Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Ensemble Methods – Model Section

Unit IV: Cluster Analysis:

Types of Data in Cluster Analysis – A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical methods – Density-Based Methods – Grid-Based Methods – Model-Based Clustering Methods – Clustering High-Dimensional Data – 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.

Unit V: Other 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.

Text and Reference Books

1. Hanghang Tong, Jiawei Han and MichelineKamber, **Data Mining Concepts and Techniques, The Morgan Kaufmann.**
2. Ramesh Sharda, Dursun Delen, Efraim Turban, Business Intelligence, Analytics, and Data Science, Pearson Education.
3. Alex Berson and Stephen J. Smith, Data Warehousing, Data Mining & OLAP, Tata McGraw – Hill.
4. K.P. Soman, ShyamDiwakar and V. Ajay, Insight into Data mining Theory and Practice, Prentice Hall.
5. G. K. Gupta, Introduction to Data Mining with Case Studies, Prentice Hall of India.

SEMESTER II
MBAF 427: IT LAB - 2: BI LAB

Hard Core: 2 Credits

Learning Objectives:

1. To learn the fundamentals of data warehousing and data mining.
2. To learn the advanced concepts in BI, data warehouse, data mining and decision support technologies.

Learning Outcomes:

1. Knowledge in Business intelligence.
2. Knowledge on Decision Support systems.

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

- Defining Business Requirements
 - Dimensional Analysis
 - Developing Information Packages
 - Requirements Definition

- Architecture and Infrastructure Specification
 - Metadata definition
 - Multi-Dimensional Modeling
 - Star Schema
 - Snow Flake Schema

- Extraction, Transformation and Loading
 - Defining rules for ETL
 - Usage of ETL Tools

- Information Delivery– OLAP, ROLAP and MOLAP

- Data Mining–Usage of Data Mining Tools

Text and Reference Books

1. Jiawei Han and Micheline Kamber. **Data Mining Concepts and Techniques**, Elsevier.
2. Alex Berson and Stephen J. Smith, **Data Warehousing, Data Mining & OLAP**, Tata McGraw – Hill.
3. K.P. Soman, Shyam Diwakar and V. Ajay. **Insight into Data mining Theory and Practice**, Prentice Hall.
4. G. K. Gupta. **Introduction to Data Mining with Case Studies**, Prentice Hall.
5. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, **Introduction to Data Mining**, Pearson Education.

SEMESTER II
MBAF 428: FIN LAB – 2: SECURITIES MARKET LAB

Hard Core: 2 Credits

Learning Objectives:

1. To develop practical knowledge on various Securities Market operation and activities
2. To build confidence on Investment and about stock and Forex trading participation

Learning Outcomes:

1. Aware the various financial products and services available for investment and trading
2. Do the Securities and Forex investment and trading

Methodology:

Practical Lab oriented

Unit I: Securities Market

Investment vs Savings – Various Avenues of Investment – Financial Market – Types of Financial Market. Stock Market- Overview of the Indian stock market - functions – Primary Vs Secondary Market Intermediaries - Role of Primary Market – Methods of floatation of capital –New Issues Market – IPO’s –Recent trends in primary market. Secondary Market - Various securities traded in the securities market

Unit II: Stock Exchanges

Stock exchanges- Meaning, Nature, Functions – Organisation and Regulatory framework for stock exchanges in India – SEBI-functions and measures for secondary market – Overview of major stock exchanges in India - Listing of Securities: Meaning – Merits and Demerits – Listing requirements, procedure, fee – Listing of rights issue, bonus issue, further issue – Listing conditions of BSE and NSE – Delisting

Unit III: Listing and Index

Meaning, Purpose, and Construction in developing index – Methods (Weighted Aggregate Value method, Weighted Average of Price Relatives method, Free-Float method) – Stock market indices in India – BSE Sensex - Scrip selection criteria –Other BSE indices (briefly) – NSE indices – S&P CNX Nifty – Scrip selection criteria – Construction – Stock market indices in foreign countries

Unit IV: Opening of Trading and Demat account and Stock Trading

Stock Trading procedure – Trading and Demat account – Procedure for opening Trading and Demat account – Various Service providers – How to open Trading and Demat Account – Various Financial Information Service providers - Virtual and Real Time Trading and Investment using appropriate Tools and Techniques

Unit V: Fundamental and Technical Analysis

Fundamental Analysis - EIC framework-Top down and bottom up approaches- Economy Analysis-Analysis of international & domestic economic scenario-Industry Analysis-industry market ratios-PE, PEG, Price over sales, Price over book value, EVA- company analysis- ratio analysis-cash flow statement analysis- Understanding Shareholding pattern of the company.

Technical Analysis - Trading rules (credit balance theory, confidence index, filter rules, market breath, advances vs declines and charting (use of historic prices, simple moving average and MACD) basic and advanced interactive charts. Do's & Don'ts of investing in markets.

Text and Reference Books:

1. S. Kevin, **Security Analysis and Portfolio Management**, PHI Learning Private Ltd.
2. Damodaran, Aswath., **Investment Validation Tools and Technique for Determining Mutual Funds**, John Wiley & Sons.
3. Singh J K & Singh Amit Kumar, **Investing in stock Markets**, A K Publications.

SEMESTER III			
Course Code	Course	Course Type	Credit
MBAF 511	International Financial Management	Hard	3
MBAF 512	Strategic Management	Hard	3
MBAF 513	Investment Analysis and Portfolio Management	Hard	3
MBAF 514	Fundamentals of Information Security & Privacy	Hard	3
MBAF 515	System Analysis and Design	Hard	3
MBAF 516	IT Lab – 3: Development of Fintech Solutions using Agile methodology	Hard	2
MBAF 517	Fin Lab – 3: Corporate Finance Lab and Data Visualization	Hard	2
MBAF 518	FinTech Internship	Hard	3
MBAF 519	Project - Phase I	Hard	2
MBAF 5XX	Elective-I Paper-2	Soft	3
MBAF 5XX	Elective-II Paper-2	Soft	3
	Semester III Credits		30

SEMESTER III
MBAF 511: INTERNATIONAL FINANCIAL MANAGEMENT

Hard Core: 3 Credits

Learning Objectives

1. *To introduce the concepts and theories of the international financial system, institutions, instruments.*
2. *To know the role, functions of the global financial system in domestic and international markets.*

Learning Outcomes:

1. *Acquire practical knowledge and understanding in global financial markets and trade.*
2. *Enable the students to find a suitable role in the global financial consultancy firms*

Methodology:

Lecture, Discussion, Case studies, observations, presentation, role plays, problem and games

Unit I: Euro Currency system:

Initial years 1958-69 – Mature Years 1970 – 74 – Decline and Fall of Breton Woods System – Role of Central Banks – Monetary controls – Problems of Intermediation.

Unit II: Central Banks:

US Federal – European Central Banks – Monetary Authority of Singapore – Bank of England – Peoples bank of China – Central bank of Russia – Brazil – Saudi Arabia Monetary Agency.

Unit III: Financial Crisis:

Latin American and African Debt crisis 1982 – Asian Financial and Economic crisis 1997 – The Argentina crisis of 2001 – GFC 2008 – International Response to GFC

Unit IV: Regulatory Frameworks:

The Brady plan of 1989 to 1994 – Post GFC – International Financial Regulators – Dodd Frame Act of USA – Global Measures – IMF Regulations – Bank Levis& Financial Taxes – A sovereign Bankruptcy Regime.

Unit V: Euro Debt Markets:

Euro currency Markets – Evolution of Euro and Markets – Types – Volumes – operations across countries

Text and Reference Books:

1. **Ross P. Buckley, Douglas Arner, From Crisis to Crisis: The Global Financial System and Regulatory Failure, Kluwer Law International.**
2. Antonio G. Fazio, Luigi De Rosa, International Banking and Financial Systems: Evolution and Stability, Routledge.
3. Lessambo, Felix I, The International Banking System Capital Adequacy, Core Businesses and Risk Management, Palgrave Macmillan.
4. George W. McKenzie, The Economics of the Euro-Currency System, Macmillan Publishers.
5. Daniel Gros, Karel Lannoo, The Euro Capital Market, Wiley.

SEMESTER III
MBAB 512: STRATEGIC MANAGEMENT

Hard Core: 3 Credit

Learning Objectives:

1. To make the students understand the strategic management process
2. To help the students to identify and link the strategy formulation

Learning Outcomes:

1. Gain knowledge to develop learning and analytical skills to solve the business cases.
2. Acquire practical knowledge to deal with strategic decision-making process

Methodology:

Lecture, Discussion, Case studies, observations, presentation, role plays, problem and games

Unit-I: Introduction to Strategy:

Concept of strategy and strategic management; Strategic Management Model - Strategic management process – Strategic intent, vision, mission, objectives, policies – Strategic management process – Levels of strategy – Ethics and social responsibility- Industry and Competitive Analysis.

Unit- II Environmental Analysis and Appraisal

External Analysis - Industry analysis, remote environment analysis, competitive analysis, global environmental analysis. Internal Analysis- Resource and Capabilities, core competence, value chain analysis, VRHN analysis, distinctive competency, sustainable competitive advantage and profitability.

Unit- III Strategic Analysis and Choice:

Corporate level strategies- Grand strategies -growth, stability, retrenchment, combination - SWOT Analysis - PESTEL Analysis, BCG, TOWS, GE, Directional Policy Matrix- Strategic Advantage Profile - McKinsey's 7s Framework - Business Level Strategies- Michael Porter's Generic strategies, Functional level strategies.

Unit-IV: Strategy Implementation:

Structure, System and People - Leadership and culture – Implementation models - Project implementation, Procedural implementation, Resource Allocation, and Budgets - Strategies for competing in global markets – organizational ethics, values and its impact on Strategy.

Unit-V: Strategy Evaluation and Control

Establishing strategic controls - Operations Control and Strategic Control - Measuring performance – Qualitative and quantitative benchmark - Analyzing variances - Strategic information systems – Strategic surveillance -strategic audit.

Text and Reference Books:

1. John A Parnell, **Strategic Management :Theory and Practice, Sage Publisher.**
2. Charles W.L.Hill, Gareth R.Jones, **Strategic Management An integrated approach, Cengage Learning.**
3. Hitt, Ireland, Hoskisson, Manikutty, **Strategic Management: South Asian Perspective, Cengage Learning.**
4. Arthur A.Thomson, A.J.Strick land, John E. Cambel, **Crafting and Executing Strategy – Concepts and Cases, Mc. Graw Hill Publisher.**
5. Azhar Kazmi, **Strategic Management and Business Policy, Mc. Graw Hill Publisher.**

SEMESTER III

MBAF 513: INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

Hard Core: 3 Credits

Learning Objective:

1. To impart the theoretical and practical aspects of investment analysis and portfolio performance.
2. To impart the knowledge and skills to value and price the equity stocks and bonds instruments using different models.

Learning Outcomes

1. Gain the knowledge and skills to make investment decisions.
2. Acquire knowledge to start stock broking firm and also to join financial consultancy firms

Methodology:

Lecture, Discussions, Exercise, Case studies, Assignments and mini projects

Unit I: Investment:

Meaning–Features - Alternatives - Investment, Speculation and Gambling – Indian Capital Market – Primary Market and Secondary Markets – Processes of Buying and Selling Securities – Secondary Markets – Types – Stock Exchanges – OTCEI – Depository – Regulatory Body of Indian Capital Market – SEBI – Role of SEBI to protect the investors.

Unit II: Risk – Return Framework:

Security Returns–Measurement of Returns–Risk- Systematic and Unsystematic Risk

Unit III: Fundamental and Technical Analysis:

Meaning–Importance–Objectives – Analysis of Economic, Industry, and Company– Financial and Non-Financial Parameters – Technical Analysis: Meaning – Difference between fundamental analysis and Technical analysis - The Dow Theory – Technical indicators – Charting Techniques – Stock market indicators – Market Efficiency: Weak form – Semi-strong form – Strong form – valuation of equity – Valuation models – Valuation multiples

Unit IV: Portfolio Analysis:

Portfolio Returns and Risk–Mean Variance Criterion– Markowitz Portfolio Theory - Diversification – Efficient Frontier – Dominance Principle – Optimum Portfolio – Utility Theory

Unit V: Asset Pricing Models:

Capital Market Theory–Capital Asset Pricing Model (CAPM) –Assumptions–Inputs - Capital Market Line–Security Market Line– CAPM anomalies - Fama – French models.

Text and Reference Books:

1. **Fisher & Jordan, Portfolio Management, Prentice Hall.**
2. ReillyBrown, Investment Analysis and Portfolio Management, Cengage Learning.
3. Alexander, Gordon JandSharpe, William, Fundamentals of Investment, Prentice Hall.
4. Elton, Edwin, Jand. Gruber, MartinJ., Modern Portfolio Theory and Investment Analysis, John Wiley.
5. Lee, ChengF.,et.al., Security Analysis and Portfolio Management, Prentice Hall.

SEMESTER III
MBAF 514: FUNDAMENTALS OF INFORMATION SECURITY & PRIVACY

Hard Core: 3 Credits

Learning Objectives:

1. To introduce the various threats and weaknesses of the information system security.
2. To introduce the concepts on Information security standards.

Learning outcomes:

1. Gain knowledge in identifying the weakest component in the computer systems
2. Acquire practical knowledge to protect and countermeasure against attacks.

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, and mini projects

Unit I: Introduction to Information Security

Information Security Overview – Importance of Information Security – Security Methodology. Risk Analysis: Threat – Types of Attacks – Secure Design Principles: The CIA Triad and Other models, Defense models – Security Policies, Standards, Procedures and Guidelines – Security Organizations: Roles and responsibilities, Managed security services – Authentication and Authorization.

Unit II: Data, Network and Operating System Security

Data Security – Securing Unstructured Data – Encryption – Database Security -Security in Networks – Threats in Networks – Network Security controls. Operating System Security – Operating system security models – Security Technology – Access Controls – Firewalls – Virtual Private Networks – Intrusion detection and Prevention Systems.

Unit III: Securing Infrastructure Services

E-mail– Web Servers – DNS Servers – Proxy Servers – Application Security – Secure Application Design – Secure Development Lifecycle – Application Security Practices.

Unit IV: Security Operations and Physical Security

Disaster Recovery, Business Continuity, Backups and High Availability – Incident Response and Forensic Analysis – Physical Security – Security Agencies – Certifying Authorities –National and International. Compliance with Information security standards, Regulations and Laws.

Unit V: Recent Trends in Security

Case Studies: Analyze Information security for Financial Systems.

Text and Reference Books:

1. Mark Rhodes – Ousley, **Information Security, The Complete Reference, McGraw Hill.**
2. Charles P. Pfleeger, Shari Lawrence Pfleeger, Security in Computing, Macmillan.
3. William Stallings, Cryptography and Network Security Principles and Practices, PHI.
4. Caelli, J., and Longley D. and Shain M., Information Security Handbook, Macmillan.
5. McClure S., Scambray J. and Kurtz G., Hacking exposed: Network security secrets and solutions, McGraw-Hill.

SEMESTER III
MBAF 515: SYSTEM ANALYSIS AND DESIGN

Hard Core: 3 Credits

Learning Objectives:

1. To introduce the concept of system development life cycle.
2. To introduce the concepts of OO and Agile methodology

Learning Outcomes:

1. Gain knowledge to analyze and develop business systems more effectively and efficiently
2. Acquire practical knowledge to develop the business systems using UML and Agile Methodology

Methodology:

Lecture, Discussion, Case studies, observations, presentation, problem and games

Unit I: Systems Development Life Cycle:

Planning, Analysis, Design, Implementation -Systems Development Methodologies: Structured Design, RAD, JAD, Prototyping - Project Team Roles and Skills - Project Initiation: Identifying Business Value, Feasibility Analysis - Project Management: Creating a Work Plan, Project Staffing, Controlling the Project.

Unit II: Object-Oriented Analysis:

Object Concepts, Introduction to the Unified Modeling Language, Use Case Diagrams, Sequence Diagrams, Class Diagrams, State chart Diagrams - OO Analysis - Use Case Modeling – Classification

Unit III: Object-Oriented Analysis and Design, and Testing:

OO Design – UI Design – Data Design – Program Design – Testing – Test Plan- System Testing- Documentation – Installation – Implementation – Maintenance and Review.

Unit IV: Agile and Its Significance:

Software is new product development – Iterative development – Risk- Driven and Client-Driven iterative planning – Time boxed iterative development – Evolutionary and adaptive development - Evolutionary requirements analysis – Evolutionary and adaptive planning – Incremental delivery – Evolutionary delivery - Agile development – Classification of methods – The agile manifesto and principles.

Unit V: Agile Methodologies:

Agile project management – Simple practices and project tools – DevOps, Virtual Collaboration Tools - Empirical vs defined and prescriptive process – Principle-based versus Rule-Based – Sustainable discipline: The human touch – Team as a complex adaptive system — Agile Testing – Agile Methodologies- Scrum – Extreme Programming – Unified Process – Evo – Finance Case Study

Text and Reference Books

1. Dennis, A., Wixom, B. H., & Roth, R. M., *Systems Analysis and Design*, John wiley & sons.
2. Bahrami, A., *Object Oriented Analysis and Design*, McGraw-Hill Higher Education.
3. Larman, C, *Agile and iterative development: a manager's guide*, Addison-Wesley Professional.
4. Hendrickson, E., *Agile Testing, Nine Principles and Six Concrete Practices for Testing on Agile Teams. I: Quality Tree Software.*
5. Bentley, L. D., Dittman, K. C., & Whitten, J. L., *Systems Analysis and Design methods*. Irwin/McGraw Hill.

SEMESTER III
MBAF516 IT LAB – 3: DEVELOPMENT OF FINTECH SOLUTIONS USING AGILE
METHODOLOGY

Hard Core: 2 Credits

Learning Objectives:

1. *To manage the financial information systems using OO design principles using UML diagrams.*
2. *To design Financial Information Software applying OOM approach using typical Case Tool*

Learning Outcomes:

1. *Helps the students to design and develop systems using UML and Agile Methodology*
2. *Apply OOAD approach for Financial Systems*

Methodology:

Lectures, Exercise & Mini project

Development of Financial System Software using Agile methodology and Agile tools.

1. Agile Management practices and principles
2. Agile development practices and principles

Problem Statement

1. Study of the problem
2. Identify project scope
3. Objectives and infrastructure

Business modeling and requirements specification

1. Prepare Software Requirements Specification
2. The specification language
3. Unified Modeling Language (UML)

Software Design using UML

1. Design data dictionary
2. Use case diagrams
3. Activity diagrams

Build and Test

1. Class diagrams
2. Sequence diagrams
3. Collaboration diagrams
4. Add interface to class diagrams

Software Implementation

1. Coding
2. Use tools for automatic code generation from system specifications.

SEMESTER III
MBAF 517: FIN LAB – 3: CORPORATE FINANCE LAB AND DATA VISUALIZATION

Hard Core: 2 Credits

Learning Objectives:

1. *Understanding the principles of data visualization and familiarizing tools and software*
2. *To the selection of appropriate visualization techniques and interpret the result*

Learning outcomes:

1. *Learn to create effective and clear visualizations.*
2. *Develop analytical and critical thinking skills.*

Methodology

Lecture, Discussion, Exercise, Case studies, Assignments and mini projects

List of Exercises:

- Data Loading and Importing
- Data cleaning and transformation in Excel
- Handling missing data in Excel
- Data aggregation and reshaping in Excel-
- joining and merging data in Excel-Sorting and
- Filtering- Text Formatting-Advanced Formatting and Filtering
- Color theory and design principles
- Chart types and their uses- Labeling and annotations
- Geographic Data Visualization- Mapping techniques and tools
- Interactive map visualizations-
- Line charts and area charts- Seasonal and trend analysis-
- Dynamic and interactive time series visualizations
- Multidimensional Data Visualization
- Multidimensional data analysis
- Scatterplot matrices
- Interactive multidimensional visualizations
- Interactive multidimensional visualizations
- Scatterplot matrices- Parallel coordinate plots
- Visualizing network data
- Data Visualization Project: A minor Case study on Data Visualization and Reporting

Text Books and Reference Books:

1. **Mihiranga, Nisal, Power BI Data Modeling: Build Interactive Visualizations, Learn DAX, Power Query, and Develop BI Models (English Edition). BPB Publications.**
2. Knafllic, Cole Nussbaumer, Storytelling with data: A data visualization guide for business professionals. John Wiley.
3. Wilke, Claus O., Fundamentals of data visualization: a primer on making informative and compelling figures, O'Reilly.
4. VanderPlas, Jake, Python data science handbook: Essential tools for working with data, O'Reilly Media.
5. Alexander, Michael, and Dick Kusleika, Excel 2019 power programming with VBA, John Wiley Sons.

SEMESTER III
MBAF 518: FINTECH INTERNSHIP

Hard Core: 4 Credits

Learning Objectives:

- 1. To provide students with a broad understanding of the FinTech industry and its various sub-sectors.*
- 2. To develop students; critical thinking and problem-solving skills through practical work experience.*

Learning Outcomes:

- 1. Students are expected to apply critical thinking and problem-solving skills to real-world FinTech challenges.*
- 2. Students are expected to develop an entrepreneurial mindset and apply innovation principles to FinTech problems*

Methodology:

Hands-on Training at FinTech Industry

Tentative Topics

Introduction to FinTech- Technologies and Tools- Regulatory Landscape- Banking and Payments- Investment and Wealth Management- Cybersecurity and Risk Management- Innovation and Entrepreneurship- Social and Environmental Responsibility- Industry Case Studies

SEMESTER IV			
Course Code	Course	Course Type	Credit
MBAF XXX	Elective –I: Paper-3	Soft	3
MBAF XXX	Elective –I: Paper-4	Soft	3
MBAF XXX	Elective –II: Paper-3	Soft	3
MBAF XXX	Elective –II: Paper-4	Soft	3
MBAF 525	Project - Phase II & Viva	Hard	6
		Semester IV Credits	18

SEMESTER IV
MBAF 525: PROJECT PHASE-II & VIVA

Hard Core 6 Credit

Learning Objectives:

1. To develop problem and address the problem through
2. To Develop models, prototype etc. for the problem

Learning Outcomes:

1. Understand and appreciate various concepts in related current and previous semesters
2. Acquire required knowledge and demonstrate skills learned in the semester

Methodology:

Research, Viva and Examination

Guidelines:

- The Final Project has two Phases.
- In phase-I students under the guidance of Faculty in-charge(s) of the given project work, carry out the background work, identify a tentative Title for the Project work, Review 20-25 Research papers, and prepare a Review Paper.
- A public presentation on broad areas of proposed work to be made by students before starting II phase.
- Presentations would be evaluated by the Committee of Internal Faculty
- The division of Marks for Phase-I and Phase-II components is 40% and 60% respectively
- Final Project Work must be in the inter-disciplinary area of Banking/Finance and IT.
- Students should be in regular contact with their Faculty guide(s) and submit a rough draft of the Report by the First week of April; Project work will be evaluated by two external examiners in a Public presentation.

Final Project Report must contain the following Components: (75-100 Pages)

1. Title Page (Soft Binding)
2. 4-5 Chapters (Background work, Methodology/Algorithm/Mathematical Model)
3. The final project report should be prepared by following the template provided by the department.

Division of Marks:

- Phase-I: Compilation of Research Papers and Presentation (Internal Assessment):40 Marks
- Phase-II:
 - Final Project work Report (External Evaluation): 30 Marks
 - Presentation and Viva (External Evaluation) : 30 Marks

List of Softcore Courses - IT Stream			
MBAF 531	Smart Computing Technologies	Soft	3
MBAF 532	Data Science for Finance	Soft	3
MBAF 533	Software Project Management	Soft	3
MBAF 534	Artificial Intelligence	Soft	3
MBAF 535	Blockchain Technology	Soft	3
MBAF 536	Data Visualization and Reporting	Soft	3
MBAF 537	Cyber Security	Soft	3
MBAF 538	Information System Control and Audit	Soft	3
MBAF 539	Chatbots Development for Finance	Soft	3
MBAF 540	Social Media Analytics	Soft	3
MBAF 541	Robotic Process Automation	Soft	3
MBAF 542	UX Design	Soft	3
List of Softcore Courses - Finance and Management Stream			
MBAF 543	Startup Financing	Soft	3
MBAF 544	Insurance and Risk Management	Soft	3
MBAF 545	Digital Business Transformation	Soft	3
MBAF 546	Human Resource Management	Soft	3
MBAF 547	Derivatives and Risk Management	Soft	3
MBAF 548	Financial Modeling	Soft	3
MBAF 549	Corporate Restructuring	Soft	3
MBAF 550	Forex and Currency Derivatives	Soft	3
MBAF 551	Corporate Governance & Business Ethics	Soft	3
MBAF 552	Lean start-up Management	Soft	3
MBAF 553	Sustainable Finance	Soft	3
MBAF 554	Decentralized Finance (DeFi)	Soft	3

SOFTCORES IT STREAM
MBAF 531: SMART COMPUTING TECHNOLOGIES

SoftCore: 3 Credits

Prerequisites: *Knowledge in Banking Technology*

Learning Objectives:

1. *To introduce the concepts on Smart Banking & IoT*
2. *To introduce the various applications on Smart Banking Technology & IoT.*

Learning Outcomes:

1. *Gain knowledge on context aware computing and IoT*
2. *Acquire practical knowledge to apply internet of things in Banking Applications*

Methodology:

Lecture, Discussion, Case studies, Exercise, Case studies, Assignments and mini projects

Unit I: Smart Banking and Software Agents

Introduction – Characteristics of Smart Banking environment – Components and Technologies of Smart Banking environments – Issues in Smart Banking - Software Agents – Introduction – Fundamentals - Agents as Tools of the Information Society - Fundamental Concepts of Intelligent Software Agents - Base Modules of Agent Systems - Development Methods and Tools – Applications - Application Areas for Intelligent Software Agents.

Unit II: RFID – Introduction – RFID system components

Operating frequency – Close coupling smart cards – Proximity-coupling smart cards, working of slotted Aloha – OSI layers and RFID, vicinity coupling smart cards, RFID security considerations – RFID Applications – Short range RFID applications, long range RFID applications.

Unit III: Context Aware Computing

Introduction – Structure and Elements of Context Aware Pervasive Systems – Context Aware Mobile Services – Context-Aware Artifacts – Context Aware Mobile Software Agents for Interaction with Web Services in Mobile Environment – Context Aware Addressing and Communication for People, Things and Software Agents – Context-Aware Sensor Networks – Context Aware Security.

Unit IV: Internet of Things

Introduction to IoT Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs- Design challenges, Development challenges, Security challenges, other challenges - Home automation, Banking and Other Industry applications, Surveillance applications, Other IoT applications.

Unit V: Case Studies In Software Agents, RFID, Context Aware Computing and Internet of Things.

Text and Reference Books:

1. **Brenner, W., Zarnekow, R., & Wittig, H.** **Intelligent software agents: foundations and applications. Springer Science & Business Media.**
2. Shepard, S, RFID: radio frequency identification, McGraw Hill Professional.
3. Loke, S, Context-aware pervasive systems: architectures for a new breed of applications, Routledge.
4. Hanes, D., Salgueiro, G., Grossetete, P., Barton, R., & Henry, IoT fundamentals: Networking technologies, protocols, and use cases for the internet of things, Cisco Press.
5. Chorafas, D. N, Enterprise architecture and new generation information systems, CRC Press.

SOFTCORES IT STREAM
MBAF 532: DATA SCIENCE FOR FINANCE

Softcore: 3 Credits

Prerequisites: Knowledge in Data Science

Learning Objectives:

1. To understand the data science fundamentals and data description and data relationship for data science process.
2. To learn financial data analysis with Python.

Learning Outcomes:

1. Familiarize the data science process
2. Understand financial data analysis with Python.

Methodology:

Lecture, Discussion, Programming examples, Presentation of projects, flipped classroom.

UNIT 1: Introducing to Data Science

Data science – Importance of data science – Data science vs Business Intelligence – Data Science Process: Overview – Defining research goals – Retrieving data – Data preparation – Exploratory Data analysis – build the model– presenting findings and building applications – Data Mining – Data Warehousing – Basic Statistical descriptions of Data- Data science use cases (banking and financial domain) – data science tools.

Unit II Describing data and its relationship

Types of Data – Types of Variables -Describing Data with Tables and Graphs –Describing Data with Averages – Describing Variability – Normal Distributions and Standard (z) Scores. Correlation –Scatter plots –correlation coefficient for quantitative data –computational formula for correlation coefficient – Regression –regression line –least squares regression line – Standard error estimate —interpretation - multiple regression equations –regression towards the mean.

Unit 3- Financial Data manipulation with Python

Introduction to Python for Data Science – python IDE – Variables – Data types – Operator – sequencing data – Control structures – NumPy Arrays - Pandas Series- Exploratory Data analysis – Dealing with missing values.

UNIT 4: Financial Data Visualization and Analysis

Financial Data Visualization Concepts– Plot method (Pandas) – MATPLOTLIB – SEABORN – PLOTLY – Financial Data Analysis Techniques - Implementation of Classification – Clustering – Regression analysis model – Categorical variable regression model - Python Packages - SciPy - Statsmodel.

UNIT 5: Case study on Finance Use Cases

Case Studies on Volatility Modeling and Market Risk Management - Portfolio Construction and Analysis, Implementation of Financial Modelling – Derivatives - Credit Risk Assessment and Management - Python Packages - Pyfolio - Quantlib, TA -Lib

TEXT AND REFERENCE BOOKS:

1. David Cielen, Arno D. B. Meysman, and Mohamed Ali, **Introducing Data Science, Manning Publications.**
2. John V Guttag, Introduction to Computation and Programming Using Python, Prentice Hall.
3. Robert S. Witte and John S. Witte, Statistics, Wiley Publications.
4. Chun, Core Python Programming, Pearson Education.

SOFTCORES IT STREAM
MBAF 533: SOFTWARE PROJECT MANAGEMENT

Softcore: 3 Credits

Prerequisites: *Basic knowledge of Software Design principles*

Learning objectives:

1. *To introduce the various concepts on project management.*
2. *To introduce the project management tools and techniques*

Learning outcomes:

1. *To gain knowledge on Software project management principles and practices.*
2. *To acquire practical knowledge on Project Management tools and techniques*

Methodology:

Lecture, Discussion, Case studies, Exercise, Case studies, Assignments and mini projects

Unit I: Product, Process and Project

Definition: Product Life Cycle: Project Life cycle Models. Process Models-ISO-9001 Model, Capability Maturity Model, Six Sigma. Metrics - Metrics strategy, Setting Targets and Tracking, Metrics implementation checklists and Tools.

Unit II: Software Quality assurance

Quality control and Quality assurance, cost and benefits of quality, Software quality assurance tools, Software Quality analyst's functions. Software Configuration Management - Processes and activities. Risk Management - Processes and activities.

Unit III: Project Schedule planning and tracking

Top down and bottom up planning - initial and final project schedule plans - milestones- Project tracking- Overview of project progress - project outlook - occurrence of tracking - tracking meetings - Project estimation.

Unit IV: Project Management in Testing phase

Testing, Activities of Testing, Test scheduling and types of tests. Management structures for Testing in Global teams. Project Management in Maintenance Phase - Processes, activities, management issues – Framework for Project management and control – Virtual team management - Contract management.

Unit V : Emerging trends in Project Management:

Globalization issues in Project Management, Impact of Internet on Project Management, People focused Process Models, Project Management tools.

Text and Reference Books

1. **Ramesh, Gopaldaswamy, Managing Global Software Projects, Tata McGraw Hill.**
2. Neal Whitten, Managing Software Development Projects, Formula for Success, John Wiley and sons.
3. Humphrey, Watts, Managing the software process, Addison Wesley.
4. Robert K. Wysocki, Effective Software Project Management, Wiley Publication.
5. Walker Royce, Software Project Management, Addison-Wesley.

SOFTCORES IT STREAM
MBAF 534: ARTIFICIAL INTELLIGENCE

Softcore: 3 Credits

Prerequisites: *Basic knowledge in theory of computation, Algorithms and software building.*

Learning Objectives:

1. *To gain in-depth knowledge of the core areas of AI.*
2. *To gain knowledge of designing and analyzing the performance of an intelligent system.*

Learning Outcomes:

1. *Provides the knowledge for designing and analyzing the performance of an intelligent system.*
2. *Knowledge for designing and analyzing the performance of an intelligent system.*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: Introduction to AI:

Introduction to Artificial Intelligence-History of AI –Intelligent Agents: Agents and Environments- The concept of Rationality- The nature of Environments- The structure of Agents.

Unit II: Problem-Solving:

Problem-Solving Agents-Example Problems-Searching for Solutions- Uninformed Search Strategies- Informed (Heuristic) Search Strategies- Heuristic Functions. Local search algorithms and optimization problems, Games-Optimal decisions in games-Alpha-Beta Pruning- Stochastic Games, Constraint Satisfaction Problems

Unit III: Knowledge, Reasoning and Planning:

Knowledge-Based Agents- Logic- Propositional Logic- Agents based on Propositional logic-First-order logic-Inference in First-order logic-Propositional Vs First-order Inference-Forward Chaining-Backward Chaining-Planning and Acting in the Real World.

Unit IV: Decision Making and Learning:

Making Simple and Complex Decision-Learning from examples, Reinforcement Learning.

Unit V: Recent Trends in AI:

Case Studies on AI in the Enterprise.

Text and Reference Books

1. **Stuart Russell and Peter Norvig, Artificial Intelligence, A Modern Approach, Prentice Hall.**
2. Tom Taulli, Artificial Intelligence Basics: An on Technical Introduction, A press.
3. Dr. Dheeraj Mehrotra, Basics of Artificial Intelligence and Machine Learning, Notion Press.

SOFTCORES IT STREAM
MBAF 535: BLOCKCHAIN TECHNOLOGY

Softcore: 3 Credits

Prerequisites: *Computer Networks and security systems*

Learning Objectives:

1. *To introduce about Blockchain and its usages in projects*
2. *To introduce about Cryptocurrencies and its implementation*

Learning Outcomes:

1. *Gain knowledge relating various blockchain and cryptographic concepts*
2. *Acquire practical knowledge to develop a secure system using Blockchain.*

Methodology:

Lecture, Discussion, Case studies, Exercise, Case studies, Assignments and mini projects

Unit I: Blockchain overview:

Introduction to crypto economics - History and Origin of Blockchain - Technical Concepts of Blockchain Systems – Decentralized - Mining - Distributed Consensus Byzantine agreement - Extensions of BFT - Incentives - Proof of Work and other models - Cryptosystems - Distributed Networks - Attacks - Blockchain types - Public and private blockchains - - Ripple, Stellar networks - Hard and soft forks - Sharding Side chain.

Unit II: Cryptography and Other Technologies:

Public key, Private key Cryptography - Classical Encryption Techniques, Data Encryption Standard - Advanced Encryption Standard, RSA algorithm, Elliptic Curve Cryptography, Hash - MD5, SHA - Digital Signatures, Application of Cryptography to Blockchain - Using hash functions to chain blocks - Digital Signatures to sign transactions - Using hash functions for Proof-of-Work.

Unit III: Smart Contracts -

The Ethereum ‘Ecosystem’ - Smart Contract Languages (Solidity & Others) - Layer 2 and Payment Channel Networks (Lightning) - Distributed Virtual Machines - Oracles - Basics of contract law - Smartcontracts and their potential Trust in Algorithms, - Integration with existing legal systems - OpenZeplin, OpenLaw- Writing smart contracts.

Unit IV: Implementation:

Supply Chain and Identity on Blockchain - Blockchain interaction with existing infrastructure – Trust in blockchain data - Scaling Blockchain – reading and writing data. Differentiate nodes, sparse data and Merkle trees. NFTs and ERC-721 Tokens - Stablecoins and other ERC-20 Tokens - Decentralized Finance (DeFi) - Distributed Storage IPFS and SWARM - Ethereum Virtual Machine.

Unit V: Cryptocurrencies:

The big picture of the industry – size, growth, structure, players - Bitcoin versus Cryptocurrencies Blockchain - Distributed Ledger Technology (DLT) - VAJRA - Strategic analysis of the space –Major players: Blockchain platforms, regulators, application providers, etc. - Bitcoin, Hyper Ledger, Ethereum, Litecoin, Zcash, CBDC.

Text and Reference Books:

1. **Don Tapscott and Alex Tapscott, Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies Is Changing the World, Portfolio.**
2. Paul Vigna and Michael J. Casey, Picador, The Age of Cryptocurrency: How Bitcoin and the Blockchain Are Challenging the Global Economic Order, Picador publishing.
3. Alan T. Norman, Bitcoin, Ethereum, Litecoin, Zcash, Monero, Ripple, Dash, IOTA And Smart Contracts, CreateSpace Independent Publishing Platform.

SOFTCORES IT STREAM
MBAF 536: DATA VISUALIZATION AND REPORTING

Softcore: 3 Credits

Prerequisites: *Basics of Data Science*

Learning Objectives:

1. *To introduce visual perception and core skills for visual analysis*
2. *To understand issues and best practices in information dashboard design*

Learning outcomes:

1. *Gain knowledge in visual perception and core skills for visual analysis*
2. *Gain practical knowledge in use of current techniques, skills, and tools necessary for visualizing data output and preparing business intelligence reports.*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: CORE SKILLS FOR VISUAL ANALYSIS:

Information visualization-effective data analysis - traits of meaningful data- visual perception - making abstract data visible - building blocks of information visualization - analytical interaction - analytical navigation - optimal quantitative scales - reference lines and regions - trellises and crosstabs - multiple concurrent views- focus and context- details on demand- over-plotting reduction - analytical patterns-pattern examples.

Unit II: TIME-SERIES, RANKING, AND DEVIATION ANALYSIS:

Time-series analysis - time- series patterns - time-series displays - time-series best practices - part to whole and ranking patterns - part- to-whole and ranking displays - best practices - deviation analysis-deviation analysis displays- deviation analysis best practices

Unit III: DISTRIBUTION, CORRELATION, AND MULTIVARIATE ANALYSIS:

Distribution analysis - describing distributions - distribution patterns - distribution displays - distribution analysis best practices - correlation analysis - describing correlations - correlation patterns - correlation displays- correlation analysis techniques and best practices - multivariate analysis - multivariate patterns - multivariate displays - multivariate analysis techniques and best practices.

Unit IV: INFORMATION DASHBOARD DESIGN:

Information dashboard - categorizing dashboards - typical dashboard data - dashboard design issues and best practices - visual perception - limits of short-term memory - visually encoding data - Gestalt principles -principles of visual perception for dashboard design

Unit V: INFORMATION DASHBOARD DESIGN II:

Characteristics of dashboards - key goals in visual design process - dashboard display media - designing dashboards for usability- meaningful organization - maintaining consistency- aesthetics of dashboards - testing for usability - case studies: sales dashboard, CIO dashboard, Telesales dashboard, marketing analysis dashboard.

Text and Reference Books:

1. **Stephen. Few, Now you see it: Simple Visualization techniques for quantitative analysis, Analytics**
2. Stephen Few, Information dashboard design: The effective visual communication of data, O'Reilly,
3. Edward R. Tufte, The visual display of quantitative information, Graphics Press,
4. Nathan Yau, Data Points: Visualization that means something, Wiley.
5. Ben Fry, Visualizing data: Exploring and explaining data with the processing environment, O'Reilly,

SOFTCORES IT STREAM
MBAF 537: CYBER SECURITY

Softcore: 3 Credits

Prerequisites: *Fundamentals of computers and security*

Learning Objectives:

1. *Understanding of E-Procurement, Digital Crimes and Laws*
2. *Understanding the practices of Forensic Science*

Learning Outcomes:

1. *Understand the practices of Forensic Science*
2. *Acquire required knowledge and demonstrate skills sets required for cyber security in electronic business*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: Introduction

Laws, Investigation and Ethics - Digital Crime - Information Security and Law, Types & overview of Digital crimes - Ethical issues in Intellectual property rights - Copyright - Patents - Data Privacy and protection - Domain name - Software privacy - Plagiarism - Issues in ethical hacking.

Unit II: E-Records, E-Discovery and Business Law

E-Discovery - Records Retention - Destruction - Email Retention - Forensics - Privacy Policies - Evidence Law - Signatures. IT Security Laws and Policy: Security policy, Non-disclosure agreements and terms of use, Honey pots and Entrapment-Active Defenses - Hacking Back.

Unit III: Forensic Technology

Introduction to computer forensics, use for forensics in law enforcement- employment proceedings - computer Forensics services. Types of computer Forensics Technology-Military, law, spyware and Adware-Biometrics security Systems.

Unit IV: Types of Computer Forensics Systems

Internet security, IDS, Firewall, Public key, 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.

Unit V: Evidences

Computer Forensics Analysis - Discovery of electronic evidence - electronic document discovery - identification of data - time keeping - forensic identification and analysis of technical surveillance devices - Reconstructing fast events.

Text and Reference Books:

1. **Nina Godbole, SunitBelapure, Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Willey.**
2. John R. Vacca, Computer forensics:computer crime scene investigation, Charles River Media.
3. Sood, Cyber Laws Simplified, McGraw Hill.
4. Anthony Reyes, Cyber Crime Investigations: Bridging the Gaps Between Security Professionals, Law Enforcement, and Prosecutors, Rockland, MA : Syngress Pub.

SOFTCORES IT STREAM
MBAF 538: INFORMATION SYSTEM CONTROL AND AUDIT

Softcore: 3 Credits

Prerequisites: *Basics of Information System*

Learning Objectives:

1. *To understand the concepts of Audit and Control in Information Systems.*
2. *To learn the management control framework, data resource management controls, application control framework and processing controls.*

Learning Outcomes:

1. *Understand the concepts of Audit and Control in Information Systems.*
2. *Gain practical knowledge for carrying out projects in information system audit and control.*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: Introduction:

Overview of Information Systems Auditing-Need for Control and Audit of Computers -Effects of Computers on Internal Controls-Effects of Computers on Auditing – Foundations of Information Systems Auditing-Conducting an Information Systems Audit-Audit risks-Types of Audit Procedures -Auditing around or through the computer.

Unit II: Management Control Framework:

Top Management Controls- Systems Development Management Controls-Programming Management Controls

Unit III: Data Resource Management Controls:

Security Management Controls-Operations Management Controls- Quality Assurance Management Controls

Unit IV: The Application Control Framework:

Boundary Controls - Input Controls - Communication Controls

Unit V: Processing Controls:

Database Controls-Output Controls Basic

Text and Reference Books

1. **Ron Weber, "Information System Control and Audit", Prentice Hall Publisher**
2. Dube, D.P. and Gulati V.P., Information System Audit and Assurance (Including CaseStudies and Checklists from the Bank), Tata McGraw-Hill.
3. Frederick Gallegos, Daniel P. Manson, SandraSenft, and Carol Gonzales Gallegos, Information Technology Control and Audit, Auerbach Publications.
4. Mayer-Schonberger, V., and K. Cukier, Big Data, First Mariner Books

SOFTCORES IT STREAM
MBAF 539: CHATBOTS DEVELOPMENT FOR FINANCE

Softcore: 3 Credits

Prerequisites: *Data mining*

Learning Objectives:

1. *To introduce concepts and theories related to natural language processing*
2. *To facilitate the application of the concepts and theories into practice in the field of natural language processing.*

Learning Outcomes:

1. *Understand and appreciate the concepts of natural language processing.*
2. *Acquire required knowledge and demonstrate skills sets required for natural language processing and chatbot application in business*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: Words

Structure – spell check, morphology using FSTs - Semantics - Lexical Semantics, Word Net and WordNet based similarity measures, Distributional measures of similarity, Concept Mining - Word Sense Disambiguation - supervised, unsupervised and semi-supervised approaches) - Parts of Speech.

Unit II: Sentences

Basic ideas in compositional semantics, Classical Parsing – different types of parsing - Bottom up, top down, Dynamic Programming - Parsing using Probabilistic Context Free Grammars and Expectation- Maximization based approaches for learning PCFG parameters. Language Modelling – Machine Translation – Named Entities – Types of Machine Translation - Applications.

Unit III: Chatbot Introduction

Introduction – Use cases of Chatbots - Types of Chatbots – Chatbot Characteristics - Architecture of a Chatbot – Chatbots vs Intelligent Agents – Chatbot usage in financial applications – Chatbot Tools – Languages and Markup Languages for development of Chatbots

Unit IV: Chatbot

Design of a Chatbot - Introduction to Conversational Interface - Preliminaries, developing a speech based Conversational Interface, Conversational Interface and devices - Technology of Conversation: Introduction - Conversation as Action- The structure of Conversation - The language of Conversation.

Unit V: Developing a Speech

Based Conversational Interface - Implementing Text to Speech - Text Analysis - Wave Synthesis - Implementing Speech Recognition - Language Model, Acoustic Model -Decoding - Speech Synthesis Mark-up Language - Advanced voice user interface design – Advanced Chatbots.

Text and Reference Books

1. **James Allen, Natural Language Understanding, Benjamin/Cummings Publishing Co.**
2. Sridhar Janarthanam, Hands-On Chatbots and Conversational UI Development: Build chatbots, Packt Publishing Ltd.
3. Jurafsky, Dan and Martin, James, Speech and Language Processing, Prentice Hall.
4. Cathy Pearl, Designing Voice User Interfaces: Principles of Conversational Experiences, O'Reilly.
5. Michael McTear, Zoraida Callejas, David Griol, The Conversational Interface: Talking to Smart Devices, Springer.

SOFTCORES IT STREAM
MBAF 540: SOCIAL MEDIA ANALYTICS

Soft Core: 3 Credits

Prerequisites: *Basics on Social Media Behavior*

Learning Objectives:

1. *To familiarize the learners with the concept of social media analytics and understand its significance.*
2. *To familiarize the learners with the tools of social media analytics.*

Learning Outcomes:

1. *Familiarize the learners with the tools of social media analytics.*
2. *Acquire required knowledge and demonstrate skills sets required for social media data analytics*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: Introduction to Social Media Analytics (SMA)

Social media landscape, Need for SMA; SMA in Small organizations; SMA in large organizations; Application of SMA in different areas - Network fundamentals and models: The social networks perspective - nodes, ties and influencers - Social network and web data and methods - Graphs and Matrices- Basic measures for individuals and networks - Information visualization.

Unit II: Making connections:

Link analysis. Random graphs and network evolution. Social contexts: Affiliation and identity- Web analytics tools: Click stream analysis, A/B testing, online surveys, Web crawling and Indexing. Natural Language Processing Techniques for Micro-text Analysis.

Unit III: Facebook Analytics:

Introduction, parameters, demographics - Analyzing page audience. Reach and Engagement analysis - Post-performance on FB. Social campaigns. Measuring and Analyzing social campaigns, defining goals and evaluating outcomes, Network Analysis - Other Social media analytics: LinkedIn, Instagram, YouTube Twitter etc. Google analytics.

Unit IV: Processing and Visualizing Data:

Influence Maximization, Link Prediction, Collective Classification, Applications in Advertising and Game Analytics - Introduction to Python Programming, Collecting and analyzing social media data; visualization and exploration.

Unit V: Case Studies:

BFSI Product, Process, People.

Text and Reference Books

1. **Matthew Ganis, Avinash Kohirkar, Social Media Analytics: Techniques and Insights for Extracting Business Value Out of Social Media, Pearson**
2. Jim Sterne, Social Media Metrics: How to Measure and Optimize Your Marketing Investment, Wiley.
3. Marshall Sponder, Social Media Analytics, McGraw Hill.

SOFTCORES IT STREAM
MBAF 541: ROBOTIC PROCESS AUTOMATION

Soft Core 3 Credit

Prerequisites: *Basic Knowledge about Robotics and Automation*

Learning Objectives:

1. *To understand the role of the Artificial Intelligence in Automation*
2. *To learn the evolution and Automation Anywhere and automate any business process with intelligent, scalable software robots*

Learning Outcomes:

1. *Apply basic principles of AI in solutions that require problem solving, knowledge and automation*
2. *Identify processes suitable for RPA and recognize how RPA is transforming businesses*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

UNIT I: AI AND AUTOMATION

AI Foundations- AI Data, AI Capabilities framework- Associated Technologies of AI - AI Prototyping- Industrializing AI - Cognitive Automation tools- Natural language processing- AI Resources -Future of AI.

UNIT II: INTRODUCTION TO RPA

RPA Foundations- History of RPA-Difference between RPA and AI- Benefits of RPA-Components of RPA-RPA Architecture- RPA Skills- Process Methodologies in RPA- Planning for RPA-RPA Platforms- Types of Bots- Deployment platforms- Future of RPA.

UNIT III: UI PATH

Introduction to UI Path: UI Path Studio-UI Path Robot-UI path Orchestrator-Task Recorder- Sequence, Flowchart, and Control Flow- Sequencing the workflow- Data Manipulation- Application with Plug-ins and Extensions Terminal Plug-in- Handling User Events and Assistant Bots- Deploying and Maintaining the Bot.

UNIT IV: BLUE PRISM

Introduction-Process Studio- Pages, Actions, Decisions, Choices and collections-Implementing business objects-Spying Elements-Working with excel –Sending and receiving email, Control room and work queues- Exception Handling

UNIT –V: AUTOMATION ANYWHERE

Introduction of Automation Anywhere-Tasks-Tasks Editors-Integration and collaboration with Automation Anywhere- working with web pages and JSON Data- Citrix Automation- E-mail Automation- PDF integration- Web Recorder-Creating IQ bots -Deploying and Maintaining the Bot.

Text and References:

1. **Tom Taulli, Artificial Intelligence Basics: A Non-Technical Introduction, Latest Edition, A press.**
2. Alok Mani Tripathi, Learning Robotic Process Automation: Create Software robots and automate business processes with the leading RPA tool – UiPath, Packt Publishing.
3. Lim Mei Ying, Robotic Process Automation with Blue Prism Quick Start Guide, Packt Publishing.
4. Tom Taulli, The Robotic Process Automation Handbook: A Guide to Implementing RPA Systems, A press.

SOFTCORES IT STREAM
MBAF 542: UX DESIGN

Soft Core 3 Credit

Prerequisites: *Basic Knowledge about Designing.*

Learning objectives:

1. *To provide a sound knowledge in UI & UX*
2. *To understand the need for various Research Methods used in UI and UX Design*

Learning outcomes:

1. *Build UI for user Applications*
2. *Evaluate UX design of any product or application*

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

UNIT I FOUNDATIONS OF DESIGN

UI vs. UX Design - Core Stages of Design Thinking - Divergent and Convergent Thinking - Brainstorming and Game storming - Observational Empathy

UNIT II FOUNDATIONS OF UI DESIGN

Visual and UI Principles - UI Elements and Patterns - Interaction Behaviors and Principles – Branding - Style Guides

UNIT III FOUNDATIONS OF UX DESIGN

Introduction to User Experience - Why You Should Care about User Experience - Understanding User Experience - Defining the UX Design Process and its Methodology - Research in User Experience Design

- Tools and Method used for Research - User Needs and its Goals - Know about Business Goals - Principles of accessibility of Web and Mobile Design.

UNIT IV WIREFRAMING, PROTOTYPING AND TESTING

Sketching Principles - Sketching Red Routes - Responsive Design – Wireframing - Creating Wireflows - Building a Prototype - Building High-Fidelity Mockups - Designing Efficiently with Tools - Interaction Patterns - Conducting Usability Tests - Other Evaluative User Research Methods - Synthesizing Test Findings - Prototype Iteration

UNIT V RESEARCH, DESIGNING, IDEATING, & INFORMATION ARCHITECTURE

Identifying and Writing Problem Statements - Identifying Appropriate Research Methods - Creating Personas - Solution Ideation - Creating User Stories - Creating Scenarios - Flow Diagrams - Flow Mapping - Information Architecture

Text and Reference Books:

1. **Joel Marsh, UX for Beginners, O’Reilly.**
2. Jon Yablonski, *Laws of UX using Psychology to Design Better Product & Services*, O’Reilly.
3. Jenifer Tidwell, Charles Brewer, Aynne Valencia, *Designing Interface*, O’Reilly.
4. Steve Schoger, Adam Wathan, *Refactoring UI*, Ben Nadel.
5. Steve Krug, “Don't Make Me Think, Revisited: A Commonsense Approach to Web & Mobile”.

SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 543: STARTUP FINANCING

Softcore: 3 Credits

Prerequisites:

Basic knowledge in Finance

Learning Objectives:

1. To understand new venture creation opportunities, its resources, and requirements for Enterprise Start-up
2. To understand the key elements of a successful startup, competition and the product/service.

Learning Outcomes:

1. Gain a broad understanding of the key issues in entrepreneurial and venture finance.
2. Gain knowledge of the key issues for startups and their impact in an international context.

Methodology:

Lecture, Discussion, Case studies, and Assignments

Unit I: Business Evaluation:

Valuate early stage business opportunity - Generate Ideas with Brainstorming- Business Start-up - Ideation- Venture Choices - Standard tools of valuation - The Rise of The startup Economy - - The Entrepreneurial Ecosystem – Entrepreneurship in India - Government Initiatives.

Unit II: Financing:

Startup capital Resource requirements - estimating Startup cash requirements - Develop financial assumptions – startup funding stages - Startup financing metrics - Feasibility Analysis - The cost and process of raising capital – Funding with Equity – Funding with Debt- lease financing - Funding startups with boots trapping- crowd funding- strategic alliances - External Commercial Borrowing – Angel investors – Venture capital funding - Unique funding issues of a high-tech ventures

Unit III: Institutional Financial Support:

Schemes for providing finance by developmental financial institutions - Small Scale Industries Development Corporations (SSIDCs) - District Industries Centers (DICs) – Industrial Development Corporation (IDC) - State Financial Corporation (SFCs) - Technical Consultancy Organisation (TCO) - Small Industries Service Institute (SISI) – National Small Industries Corporation (NSIC) - Small Industries Development Bank of India (SIDBI).

Unit IV: Startup Survival and Growth: stages of growth in a new venture- Growing with the market - Growing within the industry - Start-up Culture - Various measures of encouragement and support being provided by the State and Central Government for strengthening the Entrepreneurial Culture - Reasons for new venture failures- Scaling Ventures - preparing for change – Leadership succession.

Unit V:

Exit options: Dealing with Failure: Bankruptcy, Exit Strategies - Selling the business - Cashing out but staying in-being acquired- Going Public (IPO) – Liquidation

Text Books and References:

1. Levin, Jack S., **Structuring Venture Capital, Private Equity, and Entrepreneurial Transactions**, Aspen Publishers.
2. Nicolaj Højer Nielsen, **The Startup Funding: New Ventures**, APS publishers
3. Kathleen R Allen, **Launching New Ventures: An Entrepreneurial Approach**, Cengage Learning.
4. Steven Fisher, Janae’ Duane, **The Startup Equation -A Visual Guidebook for Building Your Startup**, Mc. Graw Hill Education.

**SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 544: INSURANCE AND RISK MANAGEMENT**

Softcore: 3 Credits

Prerequisites:

Basic Knowledge Business

Learning Objectives:

1. To introduce concepts and theories related to insurance and risk management
2. To facilitate the application of the life insurance, general insurance and risk assessment

Learning Outcomes:

1. Understand and appreciate the concepts of various insurance
2. Acquire required knowledge and to develop approach risk assessment and risk valuation

Methodology:

Lecture, Discussion, Case studies, Assignments and mini projects

Unit I: Introduction:

Meaning of risk-chance of loss-Peril-Hazards-Types of risks-risk methods-risk process- risk assessment-insurable risks- risk management meaning-objectives-risk management process- loss exposures-Risk management Programme Loss Forecasting-Other risk management tools

Unit II: Insurance

Introduction to insurance-Origin of Insurance- Importance of insurance- Basic characteristics of Insurance- Insurable Risks-Adverse Selection and Insurance- Benefits of Insurance- Cost of Insurance to society History of insurance regulation-Insurance Act-IRDA- Insurance and society- Legal principles in Insurance and risks-Insurance Contract

Unit III: Life Insurance

Introduction to life insurance- Premature death- Financial Impacts- Types of life insurance- Life insurance contractual provisions- Buying life insurance-Cost of life insurance- Savings and investment- Tax and insurance- Annuities and retirement benefits- Types of annuities- Group and health insurance

Unit IV: General Insurance

Introduction to General Insurance- Types of General Insurance- Health-Cargo-Cattle-Motor- Accident-Households-House Insurance-Social Insurance-Unemployment insurance- Homeowners Insurance-Auto Insurance- Liability Insurance-Commercial Property Insurance

Unit V: Insurance Company

Insurance company operations- Underwriting- Claims Settlement-Reinsurance- Investments- Financial operations of insurance companies- Life insurance companies-Ethics in Insurance- Ethics in claim and settlement- Ethical concerns of policy holders

Text and Reference Books:

1. **Rejda, George E., Principles of Risk Management and Insurance, Pearson Education.**
2. Gupta, P. K, Insurance and Risk Management, Himalayan Books.
3. Outreville, J. Francois, Theory and Practice of Insurance, Springer Science & Business Media.
4. Koller, Michael., Life Insurance Risk Management Essentials, Springer.
5. Diacon, Stephen, ed., A guide to insurance management, Springer.

**SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 545: DIGITAL BUSINESS TRANSFORMATION**

Softcore: 3 Credits

Prerequisites: *Basics of Business models and Technology*

Learning Objectives:

1. *To Identify key drivers of technology's impact on the business ecosystem.*
2. *To Understand the pros and cons of current digital technologies driving advancement*

Learning Outcomes:

1. *Describe the underlying economics of innovation, technology, and market disruptions.*
2. *Understand technologies and apply skills to incorporate digital disruption in business planning capabilities.*

Methodology:

Lecture, Discussion, Case studies, Assignments and mini projects

Unit 1 -Digital Disruption and Digital Transformation Imperative

Getting Out of the Digital Terminology, Understanding Digital Disruption, The Digital Business and Digital Transformation Imperatives. Forming and Executing Digital Transformation Strategy, Digital Transformation standards and policies.

Unit 2 -Leadership and Management of Digital Transformation

Building and Leading the Digital Transformation Team, The Digital Disruption and Digital Transformation of management, Keeping Up with the Pace of Technology Changes, Digital Transformation Strategy and Digital Business Strategy Capabilities.

Unit 3 - Understanding Digital Business Capabilities

Digital Innovation, Digital Learning, and Adaptability/Agility Capabilities, Digital Customer/ stakeholder Experience and Engagement. Enterprise Architecture Management, DT Adoption and Use, and Data Management/ Data Analytics/Data Science Capabilities, Cybersecurity and risk management, Digital Governance, Digital Leadership and Accelerated Change/ Transformation Capabilities.

Unit 4 - Understanding Digital Technologies – Data science and IoT

Big Data, and Data Management, Business Intelligence, Data Analytics, and Data Science, Internet of Things (IoT), Industry 4.0, Smart Things, and Edge Computing, Artificial Intelligence, Blockchain and Other Distributed Ledger Technologies.

Unit 5 - Understanding Digital Technologies - Contemporary and Communication Technologies

Video Content Analytics, Computer Vision, and Machine Vision, Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) Primer, Robots and Robotics, Drones, 3D and 4D Printing Primer, Cellular Networks up to 6G, GPS and Low Earth Orbit Satellites, IoT Connectivity like NB-IoT, LPWAN Technologies, NFC technologies and Other Communication Protocols.

Text Book and Reference Books:

1. **Richard Busulwa, Navigating Digital Transformation in Management, Taylor & Francis.**
2. David.L.Rogers, The Digital Business Transformation Playbook, Columbia University Press.
3. Nigel Vaz, Digital Business Transformation: How Established Companies Sustain Competitive Advantage from Now to Next, John Wiley & Sons.
4. Alp Ustundag, Emre Cevikcan, Industry 4.0: managing the digital transformation, Springer Nature.
5. Ustundag, Alp, and Emre Cevik, Driving Digital: The Leader's Guide to Business Transformation Through Technology, ACM Digital Library.

**SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 546: HUMAN RESOURCE MANAGEMENT**

Softcore: 3 Credits

Prerequisites:

Basic Knowledge in Organization Behavior

Learning Objectives:

1. *To provide the basic knowledge in Human Resource Management*
2. *To impart skills required for managing human resources in the organization.*

Learning Outcomes:

1. *Understand and appreciate the concepts of human resource management systems*
2. *Acquire practical knowledge and understanding over HR functions.*

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, and mini projects

Unit I: Data & Information needs for HR Manager

Sources of Data –Design of HRIS – Relevance of Decision-Making-Concepts for Information system – Concept, Structure, & Mechanisms of HRIS– Survey of Software Packages for Human Resource-HR accounting and audit.

Unit II: Human Resource Development

Training, Executive Development, Internal Mobility, Career & Succession Planning, Separation, HRD Interventions-Employee Health, Safety & Welfare, Stress Management.

Unit III: Performance Management System & HRIS

Modules on HR Planning, Recruitment, Selection, Placement-Module on Performance Appraisal System- Compensation Administration –Training & Development–Information System support for Planning & Control- EHRM.

Unit IV: HR Management Process & HRIS

Organization Structure & Related Management Processes – Authority & Responsibility Flows –Communication Process – Organization Culture and Power –Application HR- Essential HR Tools for Business-International Human Resource Management.

Unit V: Security, Size & Style of Organizations & HRIS

Security of Data and Operations of HRIS Modules – Challenges in Adoption of IT enabled HR practices – Opportunities for combination of HRM & ITES Personnel – HRIS: An Integrated Aspect

Text and Reference Books:

1. **Michael Armstrong, A Handbook Of Human Resource Management Practice, Kogan Page**
2. Gueutal & Stone, *The Brave New World Of Her*, Jossey-Bass
3. Monk & Wagner, *Concepts in Enterprise Resource Planning*, Thomson
4. Abbie Lundberg, 'It inside the World's Biggest Company', *Cio Magazine*.
5. Gupta A.K, *Management Information Systems*, Sultan Chand And Sons

**SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF X47: DERIVATIVES AND RISK MANAGEMENT**

Softcore: 3 Credits

Prerequisites:

Basic Knowledge in Financial Risks

Learning Objectives:

1. To provide the basics of financial derivatives markets, pricing of futures, options etc.,
2. To impart the knowledge skills required for calculating option prices, VaR, Margin trading, algorithm trading, and risk measurement.

Learning Outcomes:

1. Enable to estimate the price discovery methods for derivatives instruments.
2. Acquire the practical knowledge to deal with trading of derivatives instruments.

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, and mini projects

Unit I: Derivatives:

Introduction - Evolution–Structure of Derivatives markets–Types of Derivatives– Underlying assets – Spot markets – Participants in Derivatives markets – Types of orders - Derivatives and Risk Management- Technical terminologies used in derivatives trading.

Unit II: Derivatives Pricing Models:

Option pricing–Black - Scholes Model–Assumptions–Derivation and Properties – Determination of volatility – Historical and Implied volatility – Option pricing on dividend paying stocks – Binomial Model – One period – Two period – Three Period – Infinite Periods – Option strategies – Put – Call Parity Theorem.

Unit III: Futures:

Meaning–Evolution of futures contract–Over-the - Counter Market–Forward contracts–Types of traders in the derivatives markets – Specification of the futures contract – Difference between forward contract and futures contract – Convergence of futures price to spot price – Operation of margins – Role of clearing house – Forward and futures prices – investment assets versus consumption assets – short selling – Assumption and notation – Cost of carry – Delivery options –

Unit IV: Hedging Strategies:

Hedging strategies using futures – Short hedges and long hedges – Basis risk – Minimum variance hedge ratio – Stock index futures.

Unit V: Swaps:

Meaning–Mechanics of interest rate swaps–Valuation of interest rate swaps–Currency swaps–Valuation of currency swaps.

Text and Reference Books:

1. Hull J C, **Options, Futures and Other Derivatives, Prentice Hall.**
2. Don M. Chance., Robert Brooks, Derivatives and Risk Management Basics, CENGAGE Learning.
3. Marshal JF, Futures and Options Contracting: Theory and Practice, South Western Publishing Company.
4. Kolb R W, Futures, Options and Swaps, Blackwell Publishers.
5. Rajiv Srivastava, Derivatives and Risk Management, Oxford University Press.

SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 548: FINANCIAL MODELING

Softcore: 3 Credits

Prerequisites:

Basic Knowledge in Finance

Learning Objectives:

1. To learn the various Financial Analysis
2. To understand the methods of various Financial Analysis

Learning outcomes:

1. Gain the knowledge to analyze and build Financial Models
2. Acquire the practical knowledge to build models for assess the financial positions of firms

Methodology:

Exercise, Case studies, Assignments and mini projects

Unit I: Introduction to Financial Modeling:

Introduction to a spreadsheet, database functions in a spreadsheet, finance function in a spreadsheet- Basic Excel functions and shortcuts- Basic Financial Calculations – Modelling best practices- Essential Tools and Formulas- Formatting & Color Coding

Unit II: Building Financial Models in Excel:

Building a basic financial model- Formatting and presenting financial models- Date Functions for Finance- Lookup Functions-Formatting of Basic Model- Developing a good model – Multipage calculations

Unit III: Financial Analysis and Decision Making:

Overview of the income statement, balance sheet, and cash flow statement-Forecasting financial statements using historical data- Sensitivity analysis and scenario analysis- Goals Seeking- One-way and Two-Way table- Break Even-Calculating-

Unit IV: Financial Modeling in Corporate Finance:

Financial modeling in capital budgeting- Financial modeling in mergers and acquisitions- NVA-NPV

Unit V: Advanced Financial Modeling Techniques:

Monte Carlo simulation- Optimization modeling- Forecasting using time series analysis-Application of Statistical tools for financial calculations and Model Building through Excel Add on.

Text and Reference Books:

1. Benninga, Simon. **Financial modeling**. MIT press.
2. Proctor, K. Scott., **Building financial models with Excel: A guide for professionals**, Wiley.
3. Day, Alastair, **Mastering cash flow and valuation modeling**, Pearson.
4. Sengupta, Chandan, **Financial analysis and modeling using Excel and VBA**, John Wiley & Sons.
5. Yeo, Julian, **Financial statement analysis**, Nustern.

SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 549: CORPORATE RESTRUCTURING

Softcore: 3 Credits

Prerequisites: *Basics of Business and Corporate Finance*

Learning Objectives:

1. To impart knowledge of legal, accounting and practical implementation of corporate restructuring.
2. To examine the role of M&A in contemporary corporate world, use of it as strategic tool

Learning Outcomes:

1. Understanding the process and economic rationales of various corporate restructuring tools.
2. Acquire analytical skills in analyzing real-world cases in the need for corporate restructuring.

Methodology:

Lecture, Discussion, Case studies, observations, presentation, role plays, and games

UNIT-I Corporate Restructuring:

Meaning, need, different approaches and types of restructuring; Joint Ventures: Need and Types of Joint Ventures, Structures and Problems faced in Joint Ventures, Joint Ventures and Strategic Alliance - case study of successful and failed joint ventures

UNIT – II Mergers and Acquisitions (M&A):

Introduction to mergers, types of mergers - Merger Process - theories of mergers and acquisitions; Cross-border mergers and acquisitions, issues and challenges in cross border M&A. Handling cross-culture and taxations issues in cross-border M&A. Analysis of Post-Merger Performance. Fast track merger - Merger strategy – growth – synergy - operating synergy - financial synergy – diversification - Demerger - types of demerger - reverse merger - buyback of shares - leverage buy-out strategy. Takeover – types - takeover strategy - takeover bids - legal framework for mergers and acquisitions - leverages and buyouts; Hostile tender offers and various anti-takeover strategies- criteria for negotiating friendly takeover

UNIT-III Deal Valuation and Evaluation:

Factors affecting valuation basics, methods of valuation, -traditional valuation approaches – discounted cash flow valuation – Calculations of exchange ratio- asset based valuation - cash flow approaches - economic value added (EVA) - sensitivity analysis - Valuation for slump sale - valuation of synergy - cost-benefit analysis and swap ratio determination.

UNIT-IV Post-Merger Evaluation:

Financial Evaluation of Mergers and Acquisitions, Impact on shareholders' Wealth, Methods of payment and financing options in mergers and acquisitions, Competition law 2002, SEBI (Securities and Exchange Board of India) Takeover Code 2011.

UNIT – V Legal and regulatory framework of M & A:

Provisions of Companies Act 2013, – SEBI Takeover Code - Taxation of Mergers, Acquisitions and Amalgamation, Demerger – Special provisions for computation of cost of acquisition - Conditions for availing loss and depreciation – Tax Neutrality. Accounting aspects of Mergers: Principal methods of Accounting for mergers and acquisitions – Pooling of Interests Method –Purchase method - Use of Purchase method, determination of Purchase price

TEXT AND REFERENCE BOOKS

1. **Weston, Fred; Chung, Kwang S. and Siu, Jon A., Takeovers, Restructuring and Corporate Governance, Pearson Education.**
2. Das Bhagaban, Corporate Restructuring, Merger, Acquisition and Other Forms, Himalaya Publishing.
3. Prasad Godbole, Mergers, Acquisitions and Corporate Restructuring, Vikas.
4. Khan Sheeba and Kapil Kanwal N., Merger and Acquisitions, Wiley.
5. Sudarsanam, Creating Value from Mergers and Acquisitions, Pearson Education.

**SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 550: FOREX AND CURRENCY DERIVATIVES**

Softcore: 3 Credits

Prerequisites: *Basic Knowledge on Financial Market Operations*

Learning Objectives:

1. *To introduce concepts and theories related to Forex and Currency Derivatives*
2. *To facilitate the application of the concepts and theories into practice in the field of Forex Trading*

Learning Outcomes:

1. *Understand and appreciate the concepts of Forex and Currency Management*
2. *Acquire required knowledge and demonstrate skills sets required for Forex Trading*

Methodology:

Lecture, Discussion, Case studies, problem solving, Market Watch and currency trading games

Unit I: Foreign Exchange Market:

Organization – Spot Vs Forward Markets – Bid and Ask rates – Interbank Quotations – International Market Quotations – Cross Rates – Merchant Rates – FEDAI Regulations – Role of RBI.

Unit II: Exchange Rates -

Exchange rate systems – Gold Standard – Bretton Woods – Fixed Vs Floating Exchange Rate systems – Determinants of Exchange Rates – Exchange Controls.

Unit III: Foreign Exchange Transactions

Purchase and Sale transactions – Spot Vs Forward transactions – Forward Margins – Interbank Deals – Cover deals – Trading – Swap deals – Arbitrage Operations – Factors determining Forward margins.

Unit IV: Ready and Forward Exchange Rates

Principle types of Ready Merchant rates – Ready rates based on cross rates – Forward exchange contracts – Execution of Forward contracts – cancellation and Extensions - Dealing position – Exchange position – Cash position.

Unit V: Currency Derivatives

Currency Forwards – Currency Futures – Currency Options – Exchange traded transactions – Financial Swaps – Forward Rate agreements – Interest Rate Options.

Text and Reference Books

1. **Alan C Shapiro, Multinational Financial Management, Prentice Hall.**
2. Francis Cherunilam, International Economics, Tata Mc Graw Hill Pub Ltd
3. Ian H Giddy, Global Financial Markets, AITBS Publishers and Distributors.
4. C Jeevanandam, Foreign Exchange: Practice, Concepts, Sultan Chand & Sons.
5. Vijayabhaskar P and Mahapatra B., Derivatives Simplified: Response Books, Sage Publications.

**SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 551: CORPORATE GOVERNANCE & BUSINESS ETHICS**

Softcore: 3 Credits

Prerequisites:

Basic knowledge in Finance and Regulations

Learning Objectives:

1. *To introduce concepts and theories related to – Corporate Governance and Ethical practices*
2. *To facilitate the application of governance practices and ethical standards*

Learning Outcomes:

1. *Understand and appreciate the concepts of good governance and ethics*
2. *Acquire required knowledge and demonstrate best practices and ethical standards*

Methodology:

Lecture, Discussion, Case studies, and Assignments

Unit I: Introduction-

Corporate Governance- governance and management- Separation of ownership -Agency theory- Theories and philosophies of corporate governance -Agency theory-Agency Dilemma-Stewardship theory-resources dependency theory- Societal Perspective-Organisational perspective

Unit II: Directorship

Constitutions of corporate entities-Appointment of directors-Chairman and CEO- CEO duality- Independent Directors- Role of Independent Directors- Board Structures-Board Committees -Functions of Boards-Board Disclosures-Family Business and Board- Delegation of board functions-RBI regulations-SEBI regulations-Fit and proper criteria -Board room- Board room reality-Board effectiveness

Unit III: Corporate Governance Codes

Cadbury Codes- Sarbanes Oxley Act- Indian corporate governance codes- Role of Ministry- Role of RBI- Role of SEBI- Codes for individual Directors- Best Practices-Corporate governance in India-Successful Governance-Governance index-OECD codes

Unit IV: Corporate Social Responsibility

Expectations- CSR strategies and policies- CSR Reporting- Sustainable reporting- CSR in India- CSR regulations and policies- Voluntary CSR- Code of conducts- CSR audit

Unit V: Ethics in Business

Ethics and values-Ethical Philosophies-Code of ethics-Building moral content- Business ethics- ethics for management-Directors- committees

Text and References:

1. **Tricker, RI Bob, and Robert Ian Tricker, Corporate governance: Principles, policies, and practices, Oxford University Press.**
2. Mathur, U. C, Corporate Governance And Business Ethics: Text And Cases, Macmillan.
3. Fernando, A. C, Business ethics: An Indian perspective, Pearson Education.
4. DesJardins, Joseph R., and Joseph R. DesJardins, An introduction to business ethics, McGraw-Hill Higher Education.
5. Mallin, Christine A., Handbook on Corporate Governance in Financial Institutions, Edward Elgar Publishing.

SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 552: LEAN START-UP MANAGEMENT

Softcore: 3 Credits

Prerequisites: *Basic Knowledge in Business*

Learning Objectives:

1. *To understand the concept of project and steps in project management.*
2. *To evaluate the technical feasibility, financial viability, market acceptability and social desirability of projects.*

Learning Outcomes:

1. *Understand and appreciate the concepts of project and steps in project management*
2. *Acquire knowledge required for preparing business proposals.*

Methodology:

Lecture, Discussion, Case studies, Business plan assignment, problems for evaluation of projects.

Unit I: Project

Meaning – classification – importance of project management – An Integrated Approach – Project Portfolio Management System – The Need – Choosing the appropriate Project Management structure: Organizational considerations and project considerations – steps in defining the project – project Rollup – Process breakdown structure – Responsibility Matrices – External causes of delay and internal constraints.

Unit II: Project feasibility studies:

Opportunity studies, General opportunity studies, specific opportunity studies, pre-feasibility studies, functional studies or support studies, feasibility study – components of project feasibility studies – Managing Project resources flow – project planning to project completion: Pre-investment phase, Investment Phase and operational phase – Project Life Cycle – Project constraints.

Unit III: Project Evaluation under certainty:

Net Present Value, Benefit Cost Ratio, Internal Rate of Return, Payback Period, ARR – Theoretical Framework for Project Evaluation under Risk and Uncertainty: Risk Adjusted Rate Method, Certainty Equivalent Method, Probability Method, Sensitivity Analysis and Decision Tree Analysis — – Social Cost Benefit Analysis: Commercial or National Profitability, Social Desirability.

Unit IV: Developing a project plan:

Developing the project network – constructing a project network (Problems) – PERT – CPM – crashing of project network – resource levelling and resource allocation – how to avoid cost and time overruns – Steps in Project Appraisal Process –Methodology for project evaluation - Project Control Process – control issues – project audits – the project audit process – project closure – team, team member and project manager evaluations.

Unit V: Managing versus leading a project

Managing project stakeholders – social network building (Including management by wandering around) – qualities of an effective project manager – managing project teams – Five Stage Team Development Model – Situational factors affecting team development – project team pitfalls.

Text Book and Reference Books:

1. **Erik Larson and Clifford Gray , Project Management: The Managerial Process, McGraw Hill Education.**
2. Gopalakrishnan P and Ramamoorthy, V.E., Project Management, Macmillan.
3. Prasanna Chandra, Projects: Planning, Analysis, Selection, Financing, Implementation, and Review, McGraw Hill Education.
4. B.B. Goel, Project Management – Principles and Techniques, Deep and Deep.
5. B C Punia, K K Khandelwal, Project Planning and Control with PERT and CPM, Laxmi Publications.

SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 553: SUSTAINABLE FINANCE

Softcore: 3 Credits

Prerequisites:

Basic understanding on Financial system

Learning Objectives:

1. To provide basic principles for managing Sustainable Finance
2. To create a forum to understand both the challenges and opportunities around sustainable finance.

Learning Outcomes:

1. Do investment in Green Finance products
2. Choose the career in the field of Sustainable Finance

Methodology:

Lectures, case study design and analysis, group discussions, presentation, writing assignments and tests

Unit I: Introduction

Introduction to Climate Change - Sustainable Development - Sustainability and Finance - Introduction to sustainable finance - Economics of transitioning to a lower carbon future – costs, past trends, emerging opportunities stranded assets - Opportunities and challenges in financing green assets – the role of markets, regulations, and technology - Pricing carbon, using carbon finance and carbon markets - Emerging emissions trading schemes across the world

Unit II: Risk Assessment

Risk assessment due to climate change – sub-regionally and sectorally - Climate risk disclosure for mitigation and adaptation - Risk mitigation in financing green projects and companies, including examples of how risks were mitigated

Unit III: Green Investment

Green bonds – an introduction and updates on latest developments - The involvement of stock exchanges – how stock exchanges can grow green finance and the development of “green finance hubs” - Understanding Thematic Bonds

Unit IV: Green Assets Management

Development Finance Institutions and Blended Finance - Banking and sustainable asset management - Insurance and climate vulnerability – climate risks mitigation through the insurance sector

Unit V: ESG & International Developments

Concept of ESG - International Governance for Climate Change - Climate Finance Opportunity for Financial Institutions (Global) - International developments in UNFCCC negotiations on climate finance and other international developments

Text & Reference Books:

1. Dirk Schoemaker, Willem Schramade, **Principles of Sustainable Finance**, OUP Oxford publishers
2. Handbook of Environmental and Sustainable Finance, Science Direct
3. Simon Thompson, **Green and Sustainable Finance: Principles and Practice**, Kogan Page publisher

**SOFTCORES FINANCE AND MANAGEMENT STREAM
MBAF 554: DECENTRALIZED FINANCE (De Fi)**

Hard Core: 3 Credits

Prerequisites:

Basic understanding on Financial system

Learning Objectives:

- 1. To introduce the fundamental concepts of DeFi*
- 2. To Understand the DeFi tools and their application in Smart Contract*

Learning Outcomes:

- 1. To understand and appreciate the concepts of basics of DeFi*
- 2. To acquire the required knowledge and skills sets required for DeFi tools*

Methodology:

Lecture, Discussion, Case studies, observations, presentation, role plays, problem and games

Unit I: Introduction to Traditional Finance:

Traditional Finance – Money in the Economy-Money Creation-Trade Execution in financial markets-Market Microstructure-Role of Central Banks- Role of Financial Institutions- Broad and Narrow money-monetary Policy

Unit II: Introduction and Overview of DeFi:

Definition of DeFi - The history of DeFi - Advantages and disadvantages of DeFi- Understanding the role of decentralized technologies in DeFi - CeFi vs. DeFi — Comparing Centralized to Decentralized Finance-Blockchain- and-Smart Contract-Based Financial Markets

Unit III: Introduction to Smart Contracts:

Smart Contracts- Cryptocurrency and Privacy Law- Formalizing and Securing- Decentralized Identities- Proof of Person-Privacy in Contract -Relationships on Public Networks- decentralized governance- Overview of popular DeFi-DAOs

Unit IV: Decentralized Lending and Borrowing:

Introduction to decentralized lending and borrowing platforms - Advantages and disadvantages of decentralized lending and borrowing- Overview of popular DeFi lending and borrowing platforms-DeFi Protocols for Loanable Funds - The Decentralized Financial Crisis

Unit V: Risks and Challenges in DeFi:

Predictions for the future of DeFi- Challenges and opportunities for DeFi growth- Implications of DeFi for the broader financial industry- Risk Management - Smart contract risk- Liquidity risk- Operational risk- Social and reputational risk

Text and Reference Books:

1. **Birrer, Thomas K. Dennis Amstutz, and Patrick Wenger, Decentralized Finance: From Core Concepts to DeFi Protocols for Financial Transactions, Springer.**
2. Nakamoto Satoshi, DECENTRALIZED FINANCE (DeFi)-Alternative to Central Banking for the Future of Finance: How to Trade-Borrow-Lend-Save-Invest in Cryptocurrency Peer to Peer (P2P). ... Yield Farming, Investing for Beginners, Kindle.
3. Harvey, Campbell R, Ashwin Ramachandran, and Joey Santoro, DeFi and the Future of Finance, John Wiley Sons.
4. Blinder, Alan S, Central Banking in Theory and Practice, Mit press.
5. Voshmgir, Shermin, Token Economy: How the Web3 Reinvents the Internet, Token Kitchen.