

MBA: FINANCIAL TECHNOLOGY DEGREE PROGRAMME

CURRICULUM & COURSE STRUCTURE

[2020- 21 onwards]

**PONDICHERRY UNIVERSITY
SCHOOL OF MANAGEMENT
DEPARTMENT OF BANKING TECHNOLOGY**

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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 (Business Analytics), MBA (Tourism Studies), MBA (Digital Business), MBA (General, Karaikal Campus) (Insurance Management, Karaikal Campus).

Department of Banking Technology came into existence to offer a specialized M.B.A. programme in Banking Technology from the academic year 2005-06. The UGC has sanctioned this programme under its Innovative/Inter-disciplinary scheme during 10th plan. Now the Department has been admitted for regular UGC funding with adequate Faculty Members and state-of-art Computer Lab facility. The Department offers inter-disciplinary Ph.D programme in the area of Management and Computer Science & Engineering from the academic year 2009-2010. A specialized and self-financed M.B.A. programme in Financial Technology is offered from the academic year 2020-21.

Vision: To be a Global Centre of Excellence in all aspects of Technology Management in Banking and Finance Industry

Mission: To create Manpower with know-how and know-why skills required for Managing Technology Enabled Services offered by BFSI sector.

COURSES OFFERED BY THE DEPARTMENT

- MBA Banking Technology
- MBA Financial Technology
- Ph.D.

MBA Financial Technology

Department of Banking Technology, School of Management, Pondicherry University introduces a new specialized MBA programme in Financial Technology from the academic year 2020–2021. The Fintech industry uses technology to disrupt the traditional world of financial services in the areas of payments, lending, insurance, trading and funding. This new MBA (Fintech) programme will cater to the need of Digital transformation of Business. This **MBA Financial Technology (Fintech)** program designed to prepare the students for their careers in Financial Services, Insurance, Management, Consulting, Technology, Digital business and Data analytics.

MBA (Financial Technology) is a new specialized inter-disciplinary programme primarily focused on developing manpower with know-how and know-why skills required to transform and management of technology used in Fintech services industry. This programme is tailored for graduates who plan to pursue a career in the Financial Technology, Big Data Analytics in Data Science, Artificial Intelligence areas as well as for those seeking career advancement, especially engineers, mathematicians, physicists, computer programmers, and other high-tech professionals.

Focus:

MBA (Financial Technology) is a specialized programme primarily focusing on developing manpower required in the Financial Technology Area.

This programme is aimed at:

- Imparting managerial skills and knowledge required to manage modern digital business enterprises involved in providing various business domains.
- Providing knowledge in the working areas of Finance, Operations, Manufacturing, Sales & Marketing and Human Resource Management.
- 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. MBA (Financial Technology) is a blend of modern Management, Digital Business along with IT subjects that are required to develop software solutions to transform and manage the digital business.
2. Industry Integrated Curriculum
3. Two-month Internship in Digital Business Organizations
4. Soft skill training by Professionals
5. Digital Technology Training at ESCI
6. Case Studies on Fortune 500 Companies
7. Forex and Stock Trading Training
8. Bloomberg and CMIE Database based courses.
9. Facilitated with Digital Library with OPAC system and Wi-Fi Enabled campus

Aims and Objectives:

More specifically, this programme is aimed at:

- Providing the basic knowledge in the Management, Finance and Digital Technology
- Imparting skills required to manage modern Digital Business enterprises involved in providing various business domains.
- Developing Manpower required in the emerging areas namely
 - IOT
 - Data Warehousing and Mining
 - Blockchain
 - Business Intelligence
 - Machine Learning
 - Data Visualization
 - Information System Security

Duration of the Program: Two years in self-financing mode (intake of 40)

Eligibility for Admission: B.Tech/B.E in Computer Science/Information Technology/ECE/EEE/ B.Sc., in Computer Science/ IT/ Statistics / Mathematics/ BCA/ B.Com / B.Com (Computer Applications) / B.Com (IT), B.Com (E-Commerce) B.A Economics/ BBA/BBM.

Admission Procedure :

The Entrance Test for MBA Financial Technology programme will be a Common Admission Test. Candidates need to submit the application for MBA Banking Technology / MBA Financial Technology Programs through online. The selection will be done by the University as per the norms of merit consisting of entrance exam mark, group discussion, personal interview, and other statutory regulations.

Choice Based Credit System (CBCS):

The MBA (Financial Technology) Degree program is offered through a unique '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 norms of Choice Based Credit System (CBCS) in the same manner as followed in other Departments of Pondicherry University.

Weightage of Marks:

The weightage of marks between continuous Internal Assessment and End Semester Examination shall be 40 and 60 respectively. Passing Minimum: A student is declared to have passed a given subject only when he/ she secures a minimum of 40 marks in the end-semester examination and an aggregate of 50% marks (both Internal and End-Semester Examination put together). There is no minimum passing marks 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 Class Tests (15+15) : 30 marks
2. Two Written Assignments (5+ 5) : 10 marks

Total : 40 marks

Internship:

Every student of MBA: Financial Management shall undergo Internship training during the summer vacation. This Internship shall be for 45 days. During this Internship, every student should attach himself/ herself with any BFSI sector. The objective of the Internship training is to give the students a hands-on experience of real-life business operations. At the end of the Third Semester, each student should submit an Internship Training Report explaining clearly what each student has learnt during the Internship period. The Internship Report and the Viva-Voce Examination will be evaluated by the internal Faculty Guide. The Weightage for the Internship Report shall be 75 marks and weightage for Viva-Voce Examination shall be 25 marks (Total 100 marks).

Final Project:

Every student of MBA: Financial Management students should carry out a project in the Fourth Semester. Once the guides are allotted to the students, the students should contact the respective guides periodically and get necessary guidance and feedback on the project work. 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.

The Final Project Report and Viva-Voce examination will be evaluated by two Internal Examiners. The list of Internal Examiners is to be approved by the Dean, School of Management from a panel of Internal Examiners to be submitted by the Head of the Department. Final Project Report will be valued for a weightage of 150 marks and Viva – Voce examination for the Final Project shall carry a weightage of 50 marks (Total 200 Marks).

Mode of Evaluation for Continuous Internal Assessment (Weightage of Marks40):

Two Class Tests, Two Written Assignments, and any of these following components: Attendance/ Mini Projects / Seminars / Quizzes (announced and / or unannounced case analysis and case discussion / Term Paper Class Participation / Assessment of Class Notes etc. End-Semester Examination (Weightage of Marks – 60):

At the end of the Semester a three-hour written examination will be conducted covering the entire syllabus

COURSE STRUCTURE-2020-21(Onwards)

Non-Credit Bridge Courses		
Course Code	Course Name	Course Type
MBAF 301	Basics of Communication	Non-Credit
MBAF 302	Basics of Computer Programming	Non-Credit
MBAF 303	Basics of Economics	Non-Credit

Course Code	Course Name	Course Type	Course Credits
SEMESTER I			
MBAF411	Financial System in India	Hard	3
MBAF412	Financial Statement Analysis and Reporting	Hard	3
MBAF413	Fundamentals of Data Analytics	Hard	3
MBAF414	Management Concepts and Organization Behavior	Hard	3
MBAF415	Programming with Python and R	Hard	3
MBAF416	Financial Information System with Big Data	Hard	4
MBAF 417	IT Lab -1 Programming Lab using Python and R	Hard	2
MBAF 418	Fin Lab – 1 Data Analytics Lab.	Hard	2
Semester I Credits			23
SEMESTER II			
MBAF 421	Strategic Financial Management	Hard	3
MBAF 422	Investment Management	Hard	3
MBAF 423	Digital Marketing and CRM	Hard	3
MBAF 424	Advanced Data Analytics	Hard	3
MBAF 425	Financial Technology Services & Management	Hard	3
MBAF 426	Business Intelligence	Hard	3
MBAF	Elective-I Paper-1	Soft	3
MBAF	Elective-II Paper-1	Soft	3
MBAF 427	IT Lab -2: BI Lab	Hard	2
MBAF 428	Fin Lab – 2 : Advanced Data Analytics Lab	Hard	2
Semester II Credits			28
SEMESTER III			
MBAF 511	Design and Critical Thinking for Business Strategy and Startups	Hard	3

MBAF 512	Derivatives and Risk Management	Hard	3
MBAF 513	Human Resource Management	Hard	3
MBAF 514	Legal Aspects of Business & Financial Regulations	Hard	3
MBAF 515	Financial Information Security & Privacy	Hard	3
MBAF 516	System Analysis& Design and Agile Software Development	Hard	3
MBAF	Elective-I Paper-2	Soft	3
MBAF	Elective-II Paper-2	Soft	3
MBAF 517	IT Lab – 3: Development of Fintech Solutions using Agile methodology	Hard	2
MBAF 518	Fin Lab – 3: Corporate Finance Lab and Data Visualization	Hard	2
MBAF 519	Summer Internship in BFSI	Hard	2
	Semester III Credits		30
SEMESTER IV			
MBAF 521	Global Financial Markets and Instruments	Hard	3
MBAF 522	Machine Learning	Hard	3
MBAF	Elective –I: Paper-3	Soft	3
MBAF	Elective –I: Paper-4	Soft	3
MBAF	Elective –II: Paper-3	Soft	3
MBAF	Elective –II: Paper-4	Soft	3
MBAF 524	Final Project & Viva	Hard	6
	Semester IV Credits		24
Total Credits			105
List of Softcore Courses for Second Semester			
MBAF 441	Service Oriented Architecture	Soft	3
MBAF 442	Design Patterns	Soft	3
MBAF 443	Software Project Management	Soft	3
MBAF 444	Mutual Fund Management and Services	Soft	3
MBAF 445	Insurance and Risk Management	Soft	3
MBAF 446	Marketing Analytics	Soft	3
List of Softcore Courses for Third Semester			
MBAF 531	Artificial Intelligence	Soft	3

MBAF 532	Blockchain and Cryptography	Soft	3
MBAF 533	Data Visualization and Reporting	Soft	3
MBAF 534	Credit Risk Management	Soft	3
MBAF 535	Capital Market Operations	Soft	3
MBAF 536	Financial Modelling using spreadsheet	Soft	3
List of Softcore Courses for Fourth Semester			
MBAF 541	Cyber Security and Forensic	Soft	3
MBAF 542	Information System Control and Audit	Soft	3
MBAF 543	Natural Language Dialoguing and Chatbots	Soft	3
MBAF 544	Social Media Analytics	Soft	3
MBAF 545	Fixed Income Securities and Treasury Management	Soft	3
MBAF 546	Forex and Currency Derivatives	Soft	3
MBAF 547	Corporate Governance & Business Ethics	Soft	3
MBAF 548	Project Management	Soft	3

BRIDGE COURSE – NON-CREDIT

NON-CREDIT BRIDGE COURSE			
Course	Subject	Course Type	Credit
MBAF 301	Basics of Communication	Hard	Non-Credit
MBAF 302	Basics of Computer Programming	Hard	Non-Credit
MBAF 303	Basics of Economics	Hard	Non-Credit

SEMESTER I
MBAF 301: BASICS OF COMMUNICATION

Hard Core Non-Credit

Prerequisites: NA

Learning Objectives

1. To introduce concepts and topics related to Communication
2. To Provide an overview on various communication channels

Learning Outcome:

1. To understand and appreciate the concepts communication process
2. To acquire practical knowledge and understanding various communication channels

Methodology:

Lecture, Discussion and presentation

1. Self-Introduction-Video Making.
2. Reading everyday Business Newspapers- Preparing an Audio PPT.
3. Week-end Survey on petty Businesses and Prepare a case report.
4. Review of any six big Family Businesses in India.
5. Developing a case study on any tech survey services business like Flipkart, amazon, vola, Uber Cabs, Red bus.
6. Business quiz on CEOs, Taglines, PSUs, MNCs, Banks.
7. Contemporary articles in Business Magazines (News in articles) from Business India, Business Today, Business World etc.
8. Understanding Indian Business environment structure Government of Indian Policies, acts and enactments.
9. Business Automations Select cities and products, major exports, Industry Association.
10. Video Learning- Indian informal sector, CEO Presentations, AGM Meetings, CNBC Business channel discussion, entrepreneurs case study presentation.
11. Written communication exercise- letter to editor, E-circular preparation, Ministry of the meetings.
12. Study reports on Economy, annual central budget, RBI, Credit policy, comparisons of different economics
13. Preparation of a business plan report, estimation of Demand, consumers survey for census small businesses like- Eateries, Parlours, provision stores, decorations, boutiques, cab.
14. Lab reports on International businesses personalities like Google CEO, Alibaba, Microsoft, etc.
15. Job description across different cadres of different industry like soft-ware, BPO, healthcare, tourism, manufacturing, airports, financial services, E-commerce, etc.
16. Contemporary business issues, Government of India policy changes, Schemes for social sector (Swachh Bharat, etc) digitalisation initiatives, launch of New Technology, consumer products.
17. Group Discussion topics on different contemporary issues, role play activities, summary of convention and conservers.
18. Study on an Industry Review of Size and Structure of any Five Industries
19. Reports on world economic development, UN agencies, WTO, UNUAD, World Bank, MNCs country case studies.
20. Ready a best seller in Business and Preparing a Review report.

Text Book and Reference Books:

1. Mukerjee, Hory Sankar. Business Communication: connecting at work. Oxford University Press, 2013.
2. Bovée, Courtland L., John V. Thill, and Roshan Lal Raina. Business communication today. Pearson Education India, 2016.
3. Gibson, Robert. Intercultural Business Communication: An Introduction to the Theory and Practice for Business People. Oxford University Press, 2002.
4. Sweeney, Simon. English for Business Communication Teacher's Book. Cambridge University Press, 2003.

SEMESTER I
MBAF 302: BASICS OF COMPUTER PROGRAMMING
Hard Core Non-Credit

Prerequisites:

NA

Learning Objectives

1. Introduce the students to understand basics of Computer Programming

Learning Outcome:

1. Develop programme for various process
2. Prepare to develop advanced programming

Methodology:

Lecture, Discussion and presentation

A. Introduction to Imperative Programming using C

1. Data Types, Constant, Variables, Assignment Statement, I/O Functions
2. Control and Loop Statements– Arrays, Functions
3. Structure and Union –File Functions– Sample Programs

B. Introduction to Object Oriented Programming using C ++

4. Class, Constructor, Destructor, Data &Method Visibility
5. Operator Overloading–Function Overloading–Friend Function–Virtual Functions
6. Template Class– Abstract Class–IO Streams– Sample Programs

C. Introduction to Client-side Scripting languages

7. HTML
8. JavaScript
9. Sample Application

D. Introduction to Server-side Scripting Language

10. JSP
11. JDB Cin JSP
12. Sample Applications

Text Book and Reference Books:

1. Balagurusamy, **Programming in ANSIC**, Tata McGraw-Hill Education, 2008
2. Balagurusamy, **Object Oriented Programming**, Tata McGraw-Hill Education, 2007
3. Bryan Basham, Kathy Sierra, Bert Bates, **Head First Servlets and JSP**, 2ndEdition, O'Reilly Media, 2008
4. BruceW. Perry, **Java Servlet &JSP Cookbook**, O'Reilly Media, 2004

Open Resources:**Tools / Software: -**

SEMESTER I
MBAF 303: BASICS OF ECONOMICS

Hard Core Non-Credit

Prerequisites:

NA

Learning Objectives

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

Learning Outcome:

1. To understand and appreciate the concepts of Economics and Banking
2. To acquire practical knowledge and understanding Micro and Macro Economics

Methodology:

Lecture, Discussion and presentation

- 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 Book 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/Irwin, Latest
3. Marshall, Alfred. Principles of economics. Digireads. com Publishing, Latest
4. Kajal Laturi, G.S.Maddala Introduction to econometrics, Latest
5. Paul Anthony Samuelson, William D Nordhaus, —Economics, Mc Graw Hill, Latest

Open Resources: NA

Tools / Software: - NA

SEMESTER I			
Course Code	Subject	Course Type	Credit
MBAF411	Financial System in India	Hard	3
MBAF412	Financial Statement Analysis and Reporting	Hard	3
MBAF413	Fundamentals of Data Analytics	Hard	3
MBAF414	Management Concepts and Organization Behavior	Hard	3
MBAF415	Programming with Python and R	Hard	3
MBAF416	Financial Information System with Big Data	Hard	4
MBAF 417	IT Lab -1 Programming Lab using Python and R	Hard	2
MBAF 418	Fin Lab - 1 Data Analytics Lab.	Hard	2
		Semester I Credits	23

SEMESTER I

MBAF411: FINANCIAL SYSTEM IN INDIA

Hard Core: 3 Credits

Prerequisites:

Basic Knowledge in Business Environment

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 field of BFSI sectors

Learning Outcome:

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

Methodology:

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

Unit I : Introduction: Financial Environment of Business-Introduction to Financial System- Importance of financial system- Flow of money- Capital Markets - Primary Market -Basics of capital market mechanism-instruments- financing and rating institutions- Secondary Market Basics of stock exchanges and their role Regulatory framework- Money Markets Basics of money market mechanism- instruments- institutions

Unit II: Banking in India: Banking System- RBI- RBI Act- Banking Regulation Act- Major Developments- Evaluation of the Banking System and Future Trends -Commercial banking-Development Banking- Cooperative and Rural Banking-Banking Regulations-Technological Innovations and Opportunities for Banks

Unit III: Indian Capital Markets: Functions-Structure- Primary Market System and Regulations in India - Government securities- Recent Developments- Regulatory Framework-SEBI-Secondary Market System and Regulations in India-Stock Exchanges in India- History and development and importance-Regulations and Regulatory Agencies -Bond Market in India: Government Bond Market and its Interface with Capital Market z Debt Market in India

Unit IV: Insurance in India: Insurance system- Insurance markets- Insurance Industry- Insurance Act-IRDA-Life and General Insurance- Recent development in Insurance- Future Insurance Opportunities

Unit V: Merchant Banking: Introduction- Role of merchant bankers-Functions-Merchant banking services-Fund based and Non-fund-based services-Public issue-Underwriting-Regulatory framework-Credit rating- Depository services - Pension Funds- Foreign Institutional Investors

Text Book and Reference Books:

1. *Khan M.Y, Financial Services, Tata McGraw Hill, Latest Edition*
2. ThummuluriSiddaiah, Financial Services, Pearson India, Latest Edition
3. Meir Kohn, Financial Institutions and Markets, McGraw Hill Publishing Company, New York, *Latest Edition*
4. Bhole M.K., Financial Markets and Institutions, Macmillan Publishing Co. Inc., New York. , *Latest Edition*
5. Auerbach Robert D., Finance Markets and Institutions, Macmillan Publishing Co. Inc., New York. , *Latest Edition*

Open Resources:

1. <https://www.nseindia.com/education>
2. <https://certifications.nism.ac.in><https://onlinecourses.nptel.ac.in>
3. <https://swayam.gov.in/course>
4. <http://www.iibf.org.in>
5. <https://students.icai.org>

Tools / Software: -

SEMESTER I
MBAF412: FINANCIAL STATEMENT ANALYSIS AND REPORTING

Hard Core 3 Credits

Prerequisites:

Basic Knowledge in Accounting

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 Outcome:

1. To understand and appreciate the concepts of Financial statements analysis and reporting methods
2. To 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: Preparation of financial statements- Analysis of financial statements- comparative common size and trend analysis- Preparation of final accounts of banking companies, asset classification and provisioning.

Unit - II: Ratio analysis- Profitability ratios-Liquidity ratios- Solvency ratios- Turnover ratios- DuPont control chart- statement of changes in financial positions- preparation of cash flow statement- management of working capital.

Unit - III: Budgeting and budgetary control- preparation of budgets- cost concepts- analysis and behavior- preparation of cost sheets.

Unit - IV: Marginal costing and breakeven analysis- marginal cost equations- profit volume ratio breakeven analysis- margin of safety- managerial application of marginal costing.

Unit - V: Emerging concepts in accounting– ERP- New accounting standards– IFRS- eXBRL preparation of accounts using Spread sheet- Tally open source software.

Text Book and Reference Books:

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

Open Resources:

1. <https://onlinecourses.nptel.ac.in>
2. <https://swayam.gov.in/course>
3. <http://www.iibf.org.in>
4. <https://students.icai.org>

Tools / Software: - MS Excel with VBA

SEMESTER I
MBAF 413 : FUNDAMENTALS OF DATA ANALYTICS

HardCore 3 Credits

Prerequisites:

Basic Knowledge in Statistics

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 Outcome:

1. To make the students to familiarize with statistical tools and techniques
2. To expertise decision making by using statistical tools and techniques.

Methodology:

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

Unit – I : Measures of Central Tendency and Dispersion in Frequency Distributions – Summary Statistics – Measure of Central Tendency – Arithmetic mean – Weighted Mean – Geometric Mean – Median – Mode – Dispersion – Average Deviation Measures - Coefficient of Variance (CV).

Unit – II : Probability and Sampling, and Sampling Distribution – Meaning – Random Variables – Use of Expected Value in Decision Making – Binomial Distribution – Poisson Distribution – Normal Distribution – Sampling - Meaning – Random Sampling – Design of Experiments – Introduction to Sampling Distribution.

Unit – III : 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 : 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 : 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 Book and Reference Books:

1. Levin. Richard. I and Rubin. David. S ‘Statistics for Management’ Prentice-Hall, 8th Edi.
2. Gupta. S.P ‘Statistical Methods’ Sultan Chand & Sons, 7th Edition
3. Arora&Arora, StatisticsforManagement, S Chand& Co, New Delhi
4. Hooda, R. P. *Statistics for business and economics*. Vikas Publishing House, 2013.
5. Davis, Glyn, and BrankoPecar. *Business statistics using Excel*. Oxford University Press, 2013.

Open Resources:

1. <https://dbie.rbi.org.in/>, <https://data.oecd.org/>

Tools / Software: - MS Excel, SPSS

SEMESTER I

MBAF 414: MANAGEMENT CONCEPTS AND ORGANIZATION BEHAVIOR

HardCore 3 Credits

Prerequisites:

Basics of Business Environment

Learning Objectives:

1. To introduce concepts and theories related to – Management concepts and principles
2. To facilitate the application of the concepts and theories into practice in the field of Management, organisation behaviour and leadership

Learning Outcome:

1. To understand and appreciate the concepts of management and organizational behavior
2. To acquire required knowledge and demonstrate skills sets required for managing organization

Methodology:

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

Unit-I :Introduction: Technology based business organization and projects- Nature of management- Approaches to management -Functions of management – Various management approaches-management and development of a modern technology-based company- New organizational capabilities –Ethics and Social responsibility

Unit-II :Planning- Planning in digital firms- Theories – Policies – Process- Type of plans- Strategic planning process-Decision making- Theories in decision making – Bounded rationality-Group Decision making-Decision making strategies- Formulating strategy -MBO

Unit-III :Organization Structure and Design: Digital business organization and structure- Organizational levels- Various structures- Modern structures- Designing organization structure-Span of management- Departmentalization- Communication- Theories of communication- Authority – Responsibility- Delegation- Leadership types

Unit-IV :Communication and Negotiation: Theories of communication- Models of communication- Media of communication- Organizational context of communication – Barriers- Improving communication – 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- Managing quality-Quality control – TQM-Six Sigma-Organizational change-Change Process- Managing Change- Overcoming resistance to change-Approaches to change

Text Book and Reference Books:

1. Robbins, Stephen P., and Mary Coulter. *Management 13E*. Pearson India, Latest
2. Michael A.Hitt,J Stewart Black & Layman W.Porter. *Management* Pearson India, Latest
3. Rudani, Ramesh B. *Principles of management*. McGraw-Hill Education, 2020.
4. Kondalkar, V. G. *Organizational behaviour*. New Age, 2020.
5. Prasad, L. M. *Principles and practice of management*. Sultan Chand & Sons, 2020.

Open Resources:

1. <https://hbr.org/>

Tools / Software: - NA

SEMESTER I

MBAF 415: PROGRAMMING WITH PYTHON AND R

Hard Core : 3 Credits

Prerequisites: NA**Learning Objectives:**

1. Understand fundamentals of Python programming
2. Establish an efficient scientific computing environment to identify and use available R packages and associated Open-Source software to meet given scientific objectives.

Learning Outcome:

1. Knowledge in basic programming in Python and R.
2. Learnt skills in advanced libraries for application development in Python and R.

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I : Introduction to Python - The basic elements of python - Branching Programs - Control Structures - Strings and Input - Iteration - Functions, Scoping and Abstraction - Functions and scoping - Specifications - Recursion - Global variables - Modules - Numpy - Simple Algorithms and Data structures - Search Algorithms - Sorting Algorithms - Hash Tables

Unit II: Files - Pandas - System Functions and Parameters -Structured Types, Mutability and Higher-Order Functions - Strings, Tuples, Lists and Dictionaries - Lists and Mutability _ Functions as Objects - Testing, Debugging, Exceptions and Assertions - Handling Exceptions - Classes and Object-Oriented Programming - Abstract Data Types and Classes - Inheritance -Encapsulation and Information Hiding

Unit III: Networked programs, Using Web Services, Using databases and SQL - Regular Expressions – REs and Python - Plotting using PyLab- Networking and Multithreaded Programming – Sockets, Threads and Processes, Chat Application - Security – Encryption and Decryption , Classical Cyphers - Graphics and GUI Programming – Introduction to Tkinter and Tensor flow

Unit IV: Basic fundamentals, installation and use of software, data editing, use of R as a calculator, functions and assignments - Use of R as a calculator, functions and matrix operations, missing data and logical operators - conditional executions and loops, data management with sequences - Data management with repeats, sorting, ordering, and lists.

Unit V: Vector indexing, factors, Data management with strings, display and formatting - Data management - data frames - Data frames, import of external data in various file formats, statistical functions, compilation of data - Graphics and plots, statistical functions and visualisation through graphics

Text book and Reference Books

1. **John V Guttag. “Introduction to Computation and Programming Using Python”, Prentice Hall of India, 2nd Edition, 2016**
2. **Wickham, H. Grolemund, G. "R for Data Science", O’Reilly, 1st edition 2017**
3. Chun. “Core Python Programming”, Pearson Education India; 3rd edition (2015)
4. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, “Data Structures and Algorithms in Python”, Wiley. 8th edition, 2014
5. Hadley Wickham, " Advanced R", CRC, 2nd edition, 2019

Open Resources:

1. <https://docs.python.org/3.9/>
2. <https://numpy.org/doc/stable/>
3. https://pandas.pydata.org/docs/user_guide/index.html
4. https://www.tensorflow.org/federated/get_started
5. <https://cran.r-project.org/manuals.html>

Tools/Software: Python ver 3.9, Numpy, Pandas. Tensor flow, R

SEMESTER I

MBAF 416: FINANCIAL INFORMATION SYSTEM WITH BIG DATA

HardCore :4 Credits

Prerequisites:

Basics of Set Theory

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 Outcome:

1. To understand and appreciate the concepts of financial information system
2. To acquire required knowledge and demonstrate skills sets required for developing a back-end data base application for financial information system

Methodology:

Exercises and Projects.

Unit I : Financial Information System – Concepts – Decision Support System – Financial Decision Process – Internet and Web based Information System – Organizational Decision Making - – Electronic commerce – Electronic Business - 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

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 Dead locks

Unit V: Evolution 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 Eco System- HDFS- Map Reduce and YARN-Map Reduce Programming Model.

Text book and Reference Books

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, -Database System Concepts, 7thEdition, Tata McGraw Hill, 2010.
2. RamezElmasri, Shamkant B. Navathe -Fundamentals of Database Systems, Sixth Edition, Pearson/Addison - Wesley, 2010.
3. Data Science & Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, John Wiley & Sons, Inc. 2015
4. C.J. Date, A. Kannan and S. Swamynathan, -An Introduction to Database Systems, Pearson Education, Eighth Edition, 2006.
5. Raghu Ramakrishnan, -Database Management SystemsII, Fourth Edition, McGraw Hill, 2015.

Open Resources:

www.livesql.com

Tools/Software:MS SQL, MySQL, Oracle, IBM DB2

SEMESTER I

MBAF 417: IT LAB -1 PROGRAMMING LAB USING PYTHON AND R

Hard Core : 2 Credits

Prerequisites:

Programming logics

Learning Objectives:

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

Learning Outcome:

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

Methodology:

Exercises and Projects.

Python Programming

- 1) Implement a Python program to calculate the exponentiation of a number.
- 2) Implement a Python Program to calculate the maximum from a list of numbers.
- 3) Implement a Python Program to perform Linear Search and Binary Search.
- 4) Implement a Python Program to perform insertion sort.
- 5) Implement a Python Program to perform selection sort.
- 6) Implement a Python program to multiply matrices.
- 7) Implement a Python program to Calculate the most frequent words present in a file.
- 8) Implement function overloading with different function signatures.
- 9) Implement concept of class, instances and inheritance.
- 10) Implement internal and external library.
- 11) Solve algorithmic problems by program using different problem-solving strategies.
- 12) Search content using regular expression library in python.
- 13) Implement Matrix multiplication using multi-threading in python.
- 14) Implement a Python program to draw various charts.
- 15) Implement a Python program using Numpy, Pandas and tensor flow

R Programming

- 1) Create, print, add column and slice matrix using R programming
- 2) Write R programming to use and understand data frame, list 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 and understand simple machine learning algorithms

Text book and Reference Books

1. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India, 2nd Edition, 2016
2. Wickham, H. Golemund, G. "R for Data Science", O'Reilly, 1st edition 2017
3. Chun. "Core Python Programming", Pearson Education India; 3rd edition (2015)
4. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, "Data Structures and Algorithms in Python", Wiley. 8th edition, 2014
5. Hadley Wickham, "Advanced R", CRC, 2nd edition, 2019

Open Resources:

1. <https://docs.python.org/3.9/>
2. https://www.tensorflow.org/federated/get_started
3. <https://cran.r-project.org/manuals.html>

Tools/Software:

Python ver 3.9, Numpy, Pandas. Tensorflow, R

SEMESTER I**MBAF 418: FIN LAB - 1 DATA ANALYTICS LAB.****Soft Core: 2 Credits****Prerequisites:**

Basic Knowledge in MS Excel and SPSS

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 Outcome:

1. To make the students to familiarize with econometric tools and techniques
2. To 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 Books and References:**

1. Levin. Richard. I and Rubin. David. S ‘Statistics for Management’ Prentice-Hall, 8th Edition 2017.
2. Brooks, Chris., ‘Introductory Econometrics for Finance’ Cambridge University Press, 2nd Edition.
3. Hair, Anderson, Tatham and Black., ‘Multivariate Data Analysis’ Pearson Education India, 7th Edition.
4. Wooldridge M., Introductory Econometrics: A Modern Approach, Cengage Learning, 6th Edition.
5. Damodar Gujarati, Dawn C Porter, and Manoranjan Pal, Basic Econometrics, Mc Graw Hill, 6th Edition

Open Resources:

1. <https://dbie.rbi.org.in/>, <https://data.oecd.org/>

Tools / Software: - MS Excel, Eviews, and SPSS

SEMESTER II			
Course Code	Subject	Course Type	Credit
MBAF 421	Strategic Financial Management	Hard	3
MBAF 422	Investment Management	Hard	3
MBAF 423	Digital Marketing and CRM	Hard	3
MBAF 424	Advanced Data Analytics	Hard	3
MBAF 425	Financial Technology Services & Management	Hard	3
MBAF 426	Business Intelligence	Hard	3
MBAF	Elective-I Paper-1	Soft	3
MBAF	Elective-II Paper-1	Soft	3
MBAF 427	IT Lab -2: BI Lab	Hard	2
MBAF 428	Fin Lab – 2 : Advanced Data Analytics Lab	Hard	2
		Semester II Credits	28

SEMESTER II**MBAF 421: STRATEGIC FINANCIAL MANAGEMENT****HardCore: 3 Credits****Prerequisites:**

Basics knowledge in Business Finance

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 Outcome:

1. To understand and appreciate the concepts of Corporate Financial Functions
2. To 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: Evaluation of lease contracts: 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 book and Reference Books

1. Khan MY, Jain PK., Financial Management, Tata Mc Hill, New Delhi, 2017
2. Pandey I M., Financial Management, Vikas Publishing House, Delhi, 2016
3. Chandra, Prasanna: Financial Management, Tata McGraw Hill, Delhi, 2013
4. Van Horne, James C: Financial Management and Policy, Prentice Hall, Delhi, 2015
5. Brigham, Eugene and Ehrhardt C Michael., Financial Management: Theory and Practice, 2014

Open Resources:

5. <https://onlinecourses.nptel.ac.in>
6. <https://swayam.gov.in/course>
7. <http://www.iibf.org.in>
8. <https://students.icai.org>

Tools / Software: - MS Excel, Tableau, Power BI

SEMESTER II

MBAF 422: INVESTMENT MANAGEMENT

Hard Core: 3 Credits

Prerequisites:

Basic Knowledge in Finance

Learning Objectives

1. To introduce concepts and theories related to – investment analysis, fundamental and technical analysis.
2. To facilitate the application of knowledge and skills to value and price the equity using different models.

Learning Outcome:

1. To understand and appreciate the concepts of investment and Trading.
2. To acquire practical knowledge and understanding over investment and valuation strategies.

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, 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 – Role of SEBI in security markets.

Unit II: Risk – Return Framework: Security Returns–Measurement of Returns–Risk Systematic and Unsystematic Risk

Unit III: Fundamental 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 equity

Unit IV: Portfolio Analysis: Portfolio Returns and Risk–Mean Variance Criterion– Markowitz Diversification – Efficient Frontier – Dominance Principle – Optimum Portfolio – Utility Theory

Unit V: Asset Pricing Model –Capital Market Theory–Capital Asset Pricing Model (CAPM) – Assumptions–Inputs -Capital Market Line-Security Market Line– CAPM Anomalies

Text book and Reference Books:

1. Fisher & Jordan, „Portfolio Management”, Prentice Hall, New York.
2. Reilly Brown, Investment Analysis and Portfolio Management, Cengage Learning, 8th Edition
3. Alexander, Gordon J and Sharpe, William F., Fundamentals of Investment, Englewood Cliffs, New Jersey, Prentice Hall Inc,
4. Elton, Edwin J and Gruber, Martin J., Modern Portfolio Theory and Investment Analysis, John Wiley, NY,
5. Prasanna Chandra, Investment Analysis and portfolio Management, Tata McGraw Hill, New Delhi, 3rd Edition.

Open Resources: NSE, BSE**Tools/Software:** MS Excel

SEMESTER II

MBAF 423: DIGITAL MARKETING AND CRM

HardCore: 3 Credits

Prerequisites: Basics knowledge in Business and Marketing**Learning Objectives**

1. To create a learning experience to enable the students to Understand marketing skills and strategies
2. To prepare the students for skillful marketing

Learning Outcome:

1. To understand and appreciate the marketing skills
2. Helps the students to become successful marketing managers.

Methodology:

Lecture, Discussion, Problem Solving, Case studies, observations, presentation, and role plays

Unit I: Introduction: Digital Marketing Foundation: Introduction to marketing- Concepts- Theories- Difference between traditional, inbound, and outbound marketing methodologies - Digital vs. Real Marketing -Digital Marketing Channels- Creating initial digital marketing plan

Unit II: Digital Marketing - Resource planning - cost estimating - cost budgeting - cost control- E-mail marketing -E-mail marketing campaign analysis - Mobile Marketing – Content Marketing – App store Optimization – Affiliate Marketing – Adwords – Online display.

Unit III: Social Media Marketing – Understanding Social Media – Marketing Tools- Internet marketing – Face book- linkedin – Twitter advertising and publishing - Blogging- Freelancing-Video Marketing- Platform Specific Tools –Strategies- Social Media Marketing architecture.

Unit IV: Competitor and Website Analysis: Competitor Research Tools- Website Analysis Tools- Web analytics • Levels – Keyword Research Tools- Back Analysis Tools- Search Engine Optimization (SEO) – Tools - On Page and Off page SEO – Google analytics

Unit V: CRM: CRM platform -CRM models – Exercise- CRM strategy- Customer Development Process- customer Retention-Customer satisfaction- Customer Retention Strategies- Relationship Management-CRM process for B2B markets -Technological Applications in CRM, -Customer Databases and Information Systems- Emerging Trend in CRM - e-CRM in Service Marketing, e-CRM strategies, e-CRM architecture

Text book and Reference Books:

1. **Fundamentals of Digital Marketing by Pearson– 2017 by Puneet Singh Bhatia**
2. Digital Marketing For Dummies 2020 by Ryan Deiss, Russ Henneberry
3. Digital Marketing Paperback – Illustrated April 2015 by Vandana Ahuja
4. Digital Marketing | Second Edition 2020 by Seema Gupta
5. Kingsnorth, Simon. Digital marketing strategy: an integrated approach to online marketing. Kogan Page Publishers, 2019.

Open Resources:

<https://aws.amazon.com/products/databases/>

Tools / Software: - Adobe Photoshop, ERP etc

SEMESTER II
MBAF 424: ADVANCED DATA ANALYTICS

HardCore: 3 Credits

Prerequisites:

Basics knowledge on Statistical tools and Techniques

Learning Objectives

1. To create understanding on advanced statistical tools along with econometric modelling
2. To prepare the students for decision making and also create exposure on research

Learning Outcome:

1. To understand and appreciate the econometric modelling
2. To carry out research on forecasting and estimation of research problems.

Methodology:

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

Unit I: Introduction – Econometrics – Steps in Empirical Economic Analysis –Structure of Economic Data – Causality and the Notion of Ceteris Paribus in Econometric Analysis.

Unit II: Regression Analysis with Time series data - Nature of Time series data – Examples of Time series Regression Model – Finite Sample Properties of OLS under Classical assumptions – Functional Form, Dummy Variables, and Index Numbers – Trend and Seasonality -Using OLS with Time series data – Serial Correlation and Heteroskedasticity in Time series Regression.

Unit III: Advanced Time series modelling – Infinite Distributed Lag Models – Testing for Unit Roots – Spurious Regression – Co-integration and Error Correction Models – Value at Risk (VAR) – Granger Causality test - Non-Stationary Time series modelling: ARIMA Models – Autocorrelation functions – Partial Autocorrelation functions – Modelling volatility and Correlation: Motivations- Historical Volatility – Implied Volatility – ARCH Models – GARCH Models.

Unit IV: Simple Panel Data methods: Introduction – Pooling Independent Cross Sections across Time – Policy analysis with pooled Cross Sections – Two Period Panel Data Analysis – Policy analysis with Two period Panel Data – Differencing with more than Two Time Periods – Advanced Panel Data Methods: Fixed Effects Estimation – Random Effects Models

Unit V: Multivariate Data Analysis – Introduction –Factor Analysis – Multiple Discriminant Analysis – Logistic Regression – Multivariate Analysis of Variance (MANOVA) – Cluster Analysis

Text book and Reference Books:

1. Wooldridge. J., 'Econometrics' Cengage Learning, 5th Edition.
2. Gujarati. N. Damodar 'Basics of Econometrics' McGraw Hill Education, 5th Edition.
3. Brooks, Chris., 'Introductory Econometrics for Finance' Cambridge University Press, 2nd Edition.
4. Hair, Anderson, Tatham and Black., 'Multivariate Data Analysis' Pearson Education India, 7th Edition.
5. Malhotra, Naresh K., and Satyabhusan Dash. *Marketing research: An applied orientation*. Pearson,, 2016.

Open Resources:

1. <https://www.imf.org/en/Data>
2. <https://dbie.rbi.org.in/>

Tools / Software: - Eviews, SPSS, Stata

SEMESTER II

MBAF 425: FINANCIAL TECHNOLOGY SERVICES & MANAGEMENT

HardCore: 3 Credits

Prerequisites: NA**Learning Objectives:**

1. The major areas in FinTech, including Money and Payment, Digital Finance and Alternative Finance. Major technological trends, including cryptocurrencies, Blockchain, AI and Big Data. FinTech Regulation and RegTech. The fundamental role of Data and Security in data-driven finance. Business and regulatory implications of technology for the financial industry. Ways to analyze and evaluate what is driving technology innovation in Finance.

Learning Outcome:

1. Knowledge in FinTech, Digital finance and RegTech.

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: 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- Crowd funding– 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 & Tech - Introduction - History of Data Regulation – Data in Financial Services –Application of Data Analytics in Finance - Methods of Data Protection: GDPR Compliance and Personal Privacy – 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 book and Reference Books

1. **Agustin Rubini, “Fintech in a Flash: Financial Technology Made Easy”, Zaccheus, 3rd Edition, 2018**
2. Susanne Chishti and Janos Barberis, “ The FINTECH Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries”, John Wiley, 1st Edition, 2016
3. Theo Lynn, John G. Mooney, Pierangelo Rosati, Mark Cummins, “Disrupting Finance: FinTech and Strategy in the 21st Century”, Palgrave, 1st edition, 2018
4. Abdul Rafay, “FinTech as a Disruptive Technology for Financial Institutions”, IGI Global, January, 2019
5. Bernardo Nicoletti , The Future of FinTech: Integrating Finance and Technology in Financial Services, Palgrave Macmillan, August, 2018

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

Tools/Software: Open Source Tools

SEMESTER II
MBAF 426: BUSINESS INTELLIGENCE

HardCore: 3 Credits

Prerequisites: Knowledge in Database

Learning Objectives:

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

Learning Outcome:

1. Knowledge in Business intelligence.

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 Selection

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 book and Reference Books

1. Jiawei Han and MichelineKamber “Data Mining Concepts and Techniques”, Third Edition, Elsevier, Reprinted 2012.
2. Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining & OLAP”, Tata McGraw – Hill Edition, Tenth Reprint 2007.
3. K.P. Soman, ShyamDiwakar and V. Ajay “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.
4. G. K. Gupta “Introduction to Data Mining with Case Studies”, Easter Economy Edition, Prentice Hall of India, 2006.
5. Pang-Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.

Open Resources:

<http://hbr.org>

Tools/Software:

Open-Source Tools for Data Warehousing and Mining

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

Hard Core: 2 Credits

Prerequisites:

Knowledge in Database

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 Outcome:

1. Knowledge in Business intelligence.

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 book and Reference Books

1. Jiawei Han and Micheline Kamber “Data Mining Concepts and Techniques”, Third Edition, Elsevier, Reprinted 2012.
2. Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining & OLAP”, Tata McGraw – Hill Edition, Tenth Reprint 2007.
3. K.P. Soman, Shyam Diwakar and V. Ajay “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.
4. G. K. Gupta “Introduction to Data Mining with Case Studies”, Easter Economy Edition, Prentice Hall of India, 2006.
5. Pang-Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.

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

Tools/Software: Open-Source Tools for Business Intelligence

SEMESTER II**MBAF 428: FIN LAB – 2: ADVANCED DATA ANALYTICS LAB****Hard Core: 2 Credits****Prerequisites:** Basics knowledge on Statistical tools and Techniques**Learning Objectives**

1. To make the students understand of Time series modelling and Multivariate analysis
2. To create understanding on advanced statistical tools along with econometric modelling

Learning Outcome:

1. To have hands-on experience with econometric modelling to solve the business problems using advanced statistical techniques.
2. To carry out research on forecasting and estimation of research problems.

Methodology:

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

Unit I: Regression and Correlation Analysis**Unit II:** Advanced Time series modelling Non-Stationary Time series modelling - Modelling volatility and Correlation**Unit III:** Panel Data methods**Unit IV:** Factor Analysis**Unit V:** Multiple Discriminant Analysis – Logistic Regression – Multivariate Analysis of Variance Cluster Analysis**Text book and Reference Books:**

1. **Wooldridge. J., ‘Econometrics’ Cengage Learning, 5th Edition.**
2. Gujarati. N. Damodar ‘Basics of Econometrics’ McGraw Hill Education, 5th Edition.
3. Brooks, Chris., ‘Introductory Econometrics for Finance’ Cambridge University Press, 2nd Edition.
4. Hair, Anderson, Tatham and Black., ‘Multivariate Data Analysis’ Pearson Education India, 7th Edition.
5. Malhotra, Naresh K., and Satyabhusan Dash. *Marketing research: An applied orientation.* Pearson,, 2016.

Open Resources:

1. <https://www.imf.org/en/Data>
2. <https://dbie.rbi.org.in/>

Tools / Software: - Eviews, SPSS, Stata

SEMESTER III			
Course Code	Course	Course Type	Credit
MBAF 511	Design and Critical Thinking for Business Strategy and Startups	Hard	3
MBAF 512	Derivatives and Risk Management	Hard	3
MBAF 513	Human Resource Management	Hard	3
MBAF 514	Legal Aspects of Business & Financial Regulations	Hard	3
MBAF 515	Financial Information Security & Privacy	Hard	3
MBAF 516	System Analysis& Design and Agile Software Development	Hard	3
MBAF	Elective-I Paper-2	Soft	3
MBAF	Elective-II Paper-2	Soft	3
MBAF 517	IT Lab – 3: Development of Fintech Solutions using Agile methodology	Hard	2
MBAF 518	Fin Lab – 3: Corporate Finance Lab and Data Visualization	Hard	2
MBAF 519	Summer Internship in BFSI	Hard	2
		Semester III Credits	29

SEMESTER III
MBAF 511: DESIGN AND CRITICAL THINKING FOR BUSINESS STRATEGY
AND STARTUPS

HardCore: 3 Credits

Prerequisites: Basic knowledge on Business

Learning Objectives:

1. To introduce concepts and theories related to Design and Critical Thinking for business strategy and Startups
2. To facilitate the application of the concepts and theories into practice in the Startups

Learning Outcome:

1. To understand and appreciate the concepts of Design and Critical Thinking for business strategy and Startups
2. To acquire required knowledge and demonstrate skills sets required for Startups

Methodology:

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

Unit I: Evaluating Entrepreneurial Career Options and Startup Opportunities Overview of Entrepreneurship-What Does It Take to Be an Entrepreneur? Evaluating New-Business Opportunities - Research & Analysis to Guide Your Startup Strategy –Entrepreneurial Traits - The Entrepreneur’s Role, Task and Personality - Defining Survival and Success

Unit II: Design Thinking – Business / Corporate Strategy – Design Strategy – Business / Corporate Design Strategy – Real case discussions, Creating Thinking – Principles of Creativity – Creativity tools – Thinking Styles – morphological Analysis – TRIZ- Theory of Inventive problem solving - SCAMBER (Substitute, Combine, Adapt, Modify, Eliminate, and Reverse)

Unit III: Critical Thinking: Techniques and Tools for startups – Design Thinking and Startups - Design Thinking and Global Startups – Startup Ecosystem and strategy

Unit IV: Understanding the Customers – Identification of their problems – Analyzing Customer Problems – Designing the Product – Prototype – Testing the Product - Addressing Suitable solutions – Feedback - Analyzing the failures

Unit V: Innovation - Building New Product using Critical Thinking and Design Strategy – Iterating and ideating using Customer feedback – Embedding Design strategy with Business Strategy -Defining and Testing Business Models and Business Cases

Text book and Reference Books:

1. **Barringer, Bruce R. Entrepreneurship: Successfully launching new ventures. PEI**
2. Drucker, Peter F., and Peter Ferdinand Drucker. Innovation and entrepreneurship: Practice and principles. Routledge, Latest Edition.
3. Kuratko, Donald F., and Richard M. Hodgetts. Entrepreneurship: A contemporary approach. Fort Worth,;: Harcourt College Publishers, Latest Edition.
4. Timmons, Jeffry A., and Stephen Spinelli. "New venture creation: Entrepreneurship for the 21st century.", Latest Edition.
5. Timmons, Jeffry A. The Entrepreneurial Mind. Brick House Publishing..

Open Resources:

1. www.startupindia.gov.in, <https://www.digitalindia.gov.in/>

Tools / Software: - MS Excel, UML, XAMPP, etc.

SEMESTER III
MBAF 512: DERIVATIVES AND RISK MANAGEMENT

Hard Core: 3 Credits

Prerequisites:

Basic Knowledge in Finance

Learning Objectives:

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

Learning Outcome:

1. To understand and appreciate the concepts of derivatives instruments and trading
2. To acquire practical knowledge and understanding over futures, options, swaps.

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 – Derivatives and Risk Management- Technical terminologies used in derivatives trading.

Unit II: Derivatives Pricing Theory: 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 – Hedging strategies using futures – Short hedges and long hedges – Basis risk – Minimum variance hedge ratio – Stock index futures.

Unit IV: Swaps: Meaning–Mechanics of interest rate swaps–Valuation of interest rate swaps–Currency swaps–Valuation of currency swaps.

Unit V: Trading & Clearance: Trading system: Trader Workstation–Clearing entities – Open position calculation – Margin and settlement – Regulatory Framework – Risk Management – Accounting Issues.

Text book and Reference Books:

1. Hull J C, **Options, Futures and Other Derivatives, Prentice Hall, NJ**
2. Baye and Jansen, —Money, Banking and Financial Markets- An economics approach, AITBS Publishers & Distributors, Delhi,
3. Marshal JF, —Futures and Options Contracting: Theory and Practice’ South Western Publishing Company, NY
4. Kolb R W, Futures, Options and Swaps, Blackwell Publishers, NY

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

Tools/Software: open-Source Tools for Data Warehousing and Mining

SEMESTER III

MBAF 513: HUMAN RESOURCE MANAGEMENT

Hard Core: 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 Outcome:

1. To understand and appreciate the concepts of human resource management systems
2. To 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 – Role of IT in HRM – IT for HR Managers – Concept, Structure, & Mechanisms of HRIS – Programming Dimensions & HR Manager – Survey of Software Packages for Human Resource Information System including ERP Software such as SAP, Oracles Financials and Ramco's Marshal [only data input, output & screens] – EHRM – Objectives – Advantages & Disadvantages.

Unit II: Data Management for HRIS – Data Formats – Entry Procedure & Process – Data Storage & Retrieval – Transaction Processing – Office Automation – Information Processing & Control Functions – Design of HRIS – Relevance of Decision-Making Concepts for Information System Design – HRM Needs Analysis – Concept & Mechanisms – Standard Software and Customized Software – HRIS: An Investment.

Unit III: HR Management Process & HRIS – Modules on HR Planning, Recruitment, Selection, Placement – Module on Performance Appraisal System – Training & Development Module – Module on Pay & other Related Dimensions – Information System's support for Planning & Control.

Unit IV: HR Management Process II & HRIS – Organization Structure & Related Management Processes – Authority & Responsibility Flows – Communication Process – Organization Culture and Power – Data Capturing for Monitoring & Review – Behavioral Patterns of HR – Other Managers and their Place in Information Processing for Decision Making.

Unit V: Security, Size & Style of Organizations & HRIS – Security of Data and Operations of HRIS Modules – Common Problems during IT Adoption Efforts and Processes to Overcome – Orientation & Training Modules for HR & other Functionaries – Detailed Analytical Framework – Opportunities for combination of HRM & ITES Personnel – HRIS & Employee Legislation – An Integrated View of HRIS.

Text book 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, July.
5. Gupta A.K, Management Information Systems, Sultan Chand And Sons

Open Resources: <http://hbr.org>**Tools/Software:** Open source HRIS

SEMESTER III

MBAF 514: LEGAL ASPECTS OF BUSINESS & FINANCIAL REGULATIONS

Hard Core: 3 Credits

Prerequisites:

Basic Knowledge in Business

Learning Objectives:

3. To provide the basic knowledge of legal aspects
4. To impart skills required for regulatory framework of financial institutions.

Learning Outcome:

3. To understand and appreciate the concepts of Contract Act and other relevant Acts.
4. To acquire practical knowledge and understanding Financial Regulations

Methodology:

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

Unit I: Introduction: Introduction to Law- Fundamentals of Law-The Indian Contract- Indemnity and guarantee- Termination of Contracts- Bailment- Agency

Unit II: Regulations and Compliance: Provisions of RBI Act, 1934- Banking Regulation Act, 1949- Banking Companies (Acquisition and transfer of undertaking Act 1970 & 1980) - Government and RBI's Powers-Companies Act, 1956/2013

Unit III: Banking Operations: The Negotiable Instruments Act,1881(Amendment and Miscellaneous Provisions) Act, 2002- Notes, Bills and Cheques-Promissory notes, Bills of exchange and cheques (Demand, drafts, payment orders etc.) -Responsibility of paying-collecting banker indemnities -guarantees - scope and application - obligation of a banker – Endorsement- Crossing of Cheques-Dishonors of Cheques

Unit IV: Commercial Laws with reference to banking operations -Letter of Credit, Indemnity, Guarantee and Bond precautions and rights-laws relating to bill finance, LC and Deferred payments - Law relating to securities - valuation of securities - modes of charging securities - lien, pledge, mortgage, hypothecation etc.

Unit V: Other Laws: The Partnership Act, 1932- Definition- types of partnership-relation of partners to one another - Minor admitted to the benefits of partnership -Dissolution of firm-effect of non-registration - The Transfer of Property Act -The Sale of Goods Act, 1930 (Sale and Agreement to sell)2000 - Right to information Act.

Text book and Reference Books:

1. Pathak, Akhileshwar. **Legal Aspects of Business. Tata McGraw-Hill Education, 2013.**
2. Legal and Regulatory Aspects of Banking. Indian Institute of Banking and Finance,Macmillan India Ltd (2010/Latest).
3. Kumar, Ravinder: Legal Aspects of Business,Ceneage Learning India Pvt Ltd, 201/Latest.
4. Pathak, Akhileshwar. Legal Aspects of Business. Tata McGraw-Hill Education, 2013.
5. Satish B Mathur. Business Law. Tata McGraw - Hill Education,2013

Open Resources: www.rbi.org.in, www.sebi.org.in

Tools/Software: NA

SEMESTER III
MBAF 515: FINANCIAL INFORMATION SECURITY & PRIVACY

Hard Core: 3 Credits

Prerequisites:

Basic knowledge of principles and practices of System Security.

Learning Objectives:

1. The course provides the knowledge of protecting the Financial Information Systems against attacks and intrusions.

Learning outcome:

1. Gains knowledge in identifying the weakest component in the Financial Information systems and helps in providing a countermeasure for it.

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 book and Reference Books:

1. Mark Rhodes – Ousley, “Information Security, The Complete Reference”, Second Edition, 2013, McGraw Hill.
2. Charles P. Pfleeger, Shari Lawrence Pfleeger, “Security in Computing”, Fourth Edition, 2006
3. William Stallings, Cryptography and Network Security Principles and Practices, PHI Third Edition, 2005
4. Caelli, J., and Longley D. and Shain M., Information Security Handbook, Macmillan, 1991
5. McClure S., Scambray J. and Kurtz G., Hacking exposed: Network security secrets and solutions, McGraw-Hill, 1999

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

Tools/Software: Open-Source Software for Information Security

SEMESTER III
MBAF 516: SYSTEM ANALYSIS AND DESIGN AND AGILE SOFTWARE DEVELOPMENT

Hard Core: 3 Credits

Prerequisites:

Basic knowledge of system analysis and design.

Learning Objectives:

1. To teach students business systems more effectively and efficiently using OO Methodology and Agile Methodology.

Learning Outcomes:

- To understand the concept of System Analysis and Design
- To acquire practical knowledge in developing the business systems using UML and Agile

Methodology:

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

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: Systems Analysis: Developing an Analysis Plan - - Process Modeling: Data Flow Diagrams -Data Modeling: Entity Relationship Diagrams - System Design: Physical Data Flow Diagrams, Physical Entity Relationship Diagrams - Architecture Design: Computing Architectures, Infrastructure Design, Global and Security Issues.

Unit III: Object-Oriented Analysis and Design, and Testing: Object Concepts, Introduction to the Unified Modeling Language, Use Case Diagrams, Sequence Diagrams, Class Diagrams, State chart Diagrams - OO Analysis - Use Case Modeling – 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 – 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 hype – Specific agile methods – Agile Testing.

Unit V: Case Study: Agile–Motivation–Evidence–Scrum–Extreme Programming–Unified Process - – Evo – Practice Tips – Banking Case study.

Text Books and Reference Books:

1. **Systems Analysis and Design, Roberta M. Roth, Alan Dennis, Barbara Haley Wixom, John Wiley Sons; 5th Edition, International Student Version edition (13 April 2012) (Text Book).**
2. Craig Larman, “Agile and Iterative Development–A Manager’s Guide”, Pearson Education, 2010. (Text Book)
3. Elisabeth Hendrickson, “Agile Testing” Quality Tree Software Inc, 2012. (Text Book)
4. Agile Software Development, Principles, Patents and Practices, Robert C Martin, Prentice Hall, 2012.
5. The art of Agile Development, James Shore and Shane Warden, O’ Reiely, 2012

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

Tools/Software: open-Source Tools for Data Warehousing and Mining

SEMESTER III
MBAF 517 IT LAB – 3: DEVELOPMENT OF FINTECH SOLUTIONS USING
AGILE METHODOLOGY

Hard Core: 2 Credits

Prerequisites:

Basics of Object-oriented Concepts

Learning Objectives:

1. This course gives a hands-on-experience to the students to build and manage the financial information systems using object-oriented design by applying established design principles using UML diagrams.
2. Design and Develop Financial Information Software applying Object Oriented Modeling approach using typical Case Tool as given below:

Learning Outcomes:

1. Helps the students to design and develop systems using UML and Agile Methodology

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 518: FIN LAB – 3: CORPORATE FINANCE LAB AND DATA
VISUALIZATION

Hard Core: 2 Credits

Prerequisites:

Basic Knowledge in Computer and Finance

Learning Objectives

1. To provide concepts of visual analytics such as visuals reports and dashboards

Learning Outcome:

1. To Create ad-hoc reports, data visualizations, and dashboards
2. To acquire practical knowledge and understanding in data presentation and visualization

Methodology:

Exercise, Case studies, Assignments and mini projects

Unit I: Intro to PowerBI- Course introduction - Basics of data visualization- Getting started with PowerBI - Creating basic charts.

Unit II: Common charts I- Creating common visualizations - Creating dashboard layouts - Using dashboard filters.

Unit III: Transformations and calculations- Creating calculated fields and measures - Using Quick Table calculations.

Unit IV: Interactions - Using text and visual tooltips - Creating actions to drive interactivity.

Unit V: Common charts II - Creating more chart types - Advanced visual functionality (formatting, colors etc.) Data story telling - Creating an interactive data story - Participating in the Tableau community - Further opportunities to learn.

Text Books and Reference Books:

1. Steve Wexler, Jeffrey Shaffer, Andy Cotgreave: **The Big Book of Dashboards**
2. Ryan Sleeper: Practical Tableau

Open Resources: <https://dbie.rbi.org.in/>, <https://www.imf.org/en/Data>

Tools/Software: MS PowerBI, Tableau

SEMESTER III**MBAF 519: SUMMER INTERNSHIP IN BFSI****Hard Core: 2 Credits****Prerequisites:**

Basic Knowledge in Business, Computer and Finance

Learning Objectives

1. To provide hands-on experience in BFSI Sector

Learning Outcome:

1. To acquire industry experience
2. To acquire practical knowledge and understanding in BFSI sector

Methodology:

Internship and mini projects

Every student of MBA: Financial Management shall undergo Internship training during the summer vacation. This Internship shall be for 45 days. During this Internship, every student should attach himself/ herself with any BFSI sector. The objective of the Internship training is to give the students a hands-on experience of real-life business operations. At the end of the Third Semester, each student should submit an Internship Training Report explaining clearly what each student has learnt during the Internship period. The Internship Report and the Viva-Voce Examination will be evaluated by the internal Faculty Guide. The weightage for the Internship Report shall be 75 marks and weightage for Viva-Voce Examination shall be 25 marks (Total 100 marks).

SEMESTER IV			
Course Code	Course	Course Type	Credit
MBAF 521	Global Financial Markets and Instruments	Hard	3
MBAF 522	Machine Learning	Hard	3
MBAF	Elective –I: Paper-3	Soft	3
MBAF	Elective –I: Paper-4	Soft	3
MBAF	Elective –II: Paper-3	Soft	3
MBAF	Elective –II: Paper-4	Soft	3
MBAF 524	Final Project & Viva	Hard	6
		Semester IV Credits	24

SEMESTER IV

MBAF 521: GLOBAL FINANCIAL MARKETS AND INSTRUMENTS

Hard Core: 3 Credits

Prerequisites:

1. Completed a Course on Indian Financial System

Learning Objectives

1. To introduce the basic concepts of international financial system, institutions involved, instruments traded and the nature of short term and long term markets operate in it.
2. To highlight the role and functioning of different international financial institutions facilitating the working of global financial markets

Learning Outcome:

1. Helps the students to work in the global financial consultancy firms
2. To acquire practical knowledge and understanding in global financial markets and trade

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 – Central Bank of Japan – 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 Books and Reference Books:

1. **Ross P. Buckley, Douglas Arner, “From Crisis to Crisis, The global Financial System and Regulatory Failure”, Kluwer Law International, ISBN 9789041133540, 2011.**
2. Antonio G. Fazio, Luigi De Rosa, “International Banking and Financial Systems: Evolution and Stability”, 2003.
3. Lessambo, Felix I, “The International Banking System Capital Adequacy, Core Businesses and Risk Management”, 2012, Palgrave Macmillan UK
4. George W. McKenzie, “The Economics of the Euro-Currency System”, Macmillan Publishers Limited 1976
5. Daniel Gros, Karel Lannoo, “The Euro Capital Market”, ISBN: 978-0-471-99762-7, Wiley

Open Resources: <https://dbie.rbi.org.in/>, <https://www.imf.org/en/Data>, <https://www.nasdaq.com/>

Tools/Software: Bloomberg, CMIE

SEMESTER IV
MBAF 522: MACHINE LEARNING

Hard Core: 3 Credits

Prerequisites: Statistics, Algorithms.

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 Outcome: 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 of your choice and analyze the results.
3. Use a tool to implement typical clustering algorithms for different types of applications.

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.

Unit III: UNSUPERVISED LEARNING: Clustering- K-means –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: ADVANCED LEARNING: Sampling –Basic sampling methods - Monte Carlo. Reinforcement Learning- K-Armed Bandit- Elements- Model-Based Learning- Value Iteration- Policy Iteration. Temporal Difference Learning- Exploration Strategies• Deterministic and Non-deterministic Rewards and Actions Computational Learning Theory - Mistake bound analysis, sample complexity analysis, VC dimension. Occam learning, accuracy and confidence boosting. Deep Learning-RNN, ReLU,etc.

Text book and Reference Books

1. **Christopher Bishop, Pattern Recognition and Machine Learning, Springer, 2007.**
2. Kevin P. Murphy, Machine Learning: A Probabilistic Perspective, MIT Press, 2012.
3. Ethem Alpaydin, -Introduction to Machine Learning II, MIT Press, Third Edition, 2014.
4. Tom Mitchell, "Machine Learning", McGraw-Hill, 1997.
5. Trevor Hastie, Robert Tibshirani, Jerome Friedman, "The Elements of Statistical Learning", Springer, Second Edition, 2011
6. Stephen Marsland, -Machine Learning - An Algorithmic Perspective II, Chapman and Hall/CRC Press, Second Edition, 2014

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

Tools/Software: Open-Source Tools for AI Application development.

SEMESTER IV
MBAF 524: FINAL PROJECT & VIVA

Hard Core 6 Credit

Prerequisites: NA

Learning Objectives:

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

Learning Outcome:

1. To understand and appreciate various concepts in related current and previous semesters
2. To 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, 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 (Back ground 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:
 - o Final Project work Report (External Evaluation): 30 Marks
 - o Presentation and Viva (External Evaluation) : 30 Marks

List of Softcore Courses for Second Semester			
Course Code	Subject	Course Type	Credit
MBAF 441	Service Oriented Architecture	Soft	3
MBAF 442	Design Patterns	Soft	3
MBAF 443	Software Project Management	Soft	3
MBAF 444	Mutual Fund Management and Services	Soft	3
MBAF 445	Insurance and Risk Management	Soft	3
MBAF 446	Marketing Analytics	Soft	3

SOFTCORE II SEMESTER
MBAF 441: SERVICE ORIENTED ARCHITECTURE

SoftCore : 3 Credits

Prerequisites: Software Engineering / System Analysis and Design

Learning Objectives:

1. To understand the concepts behind SOA and its practical applications.

Learning Outcome:

- To understand the concepts behind SOA and its practical applications
- To help the Students to develop software systems using SOA

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I : Introduction to SOA-Understanding of SOA -Evolution of SOA -Concepts of services and SOA-Design principles of SOA-Relationship between SOA and web services- Advantages and risks of SOA-Service Oriented Methodology - Introduction to a SOA adoption roadmap- Service lifecycle-Three analysis approaches – Service oriented analysis - Service oriented design - Introduction to service oriented patterns - Traditional EAI Approach -Problems With Traditional EAI Approach - Building the Services-Advantages of SOA-Business Advantages -Adoption Stages-Benefits of employing SOA- Review of common business goals-Evaluating trade off strategies.

Unit II : SOA Past and Present- From XML to Web Service to SOA-How SOA was done before-Emerging standards for SOA-Compare SOA with other architectures -Basic Concepts - Building from components -Modeling concepts -Object- Containment - Messages and methods -Object interaction -Introduction to Business Process -Collection of services – Simple request response interaction -Complex interaction involving many services-Need for a coordinator service emerges - Orchestration or Business process - Composing processes using processes -Business Process Execution Language(BPEL).

Unit III : Service Enablement –Basic web services elements- Core web services standards stack-The Importance of WSDL-The design of SOA-The use of registries via UDDI-The basic concepts of service orientation - Distributing Services Across a Network -Aligning functional and non functional requirements -The role of Intermediaries in Service Networks -Modeling SOA building blocks-Using UML to analyze and design interfaces -Generating a domain model - Implementing and realizing Use Cases - Showing web service collaboration –Usage of communication diagrams.

Unit IV : Enterprise Service Bus (ESB) Objective- Service Invocation - Legacy System Integration –The role of ESB in SOA- Security and ESB-Process Driven Services-Service layer abstraction -Introduction to business process layer-Process patterns -Orchestration and choreography - WS-BPEL for process automation –Layered Architecture –The layers pattern-Classic three-tier architecture -Application service layer-Business service layer- Orchestration service layer - Service Oriented Reference Model - Reference models and reference architectures –SOA vendors and their relationship with SOA- SOA support in .NETandJ2EEplatforms.

Unit V: SOA in Banking Domain-Banking business processes-SOA in Core Banking Software Case Studies.

Text book and Reference Books

1. **Service-Oriented Architecture: Concepts, Technology and Design, Thomas Erl, PrenticeHallPTR,Firstedition,2007(TextBook)**
2. Service-Oriented Architecture: A Field Guide to Integrating XML and Web Services, ThomasErl,PrenticeHallPTR,Firstedition,2007
3. Enterprise SOA: Service-Oriented Architecture Best Practices, Dirk Krafzig, Karl BankeandDirkSlama,PrenticeHallPTR,2004
4. SOA Principles of Service Design, Thomas Erl, Prentice HallPTR,Firstedition,2007
5. SOA Design Patterns; Thomas Erl, Prentice Hall PTR, FirstEdition,2008.

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

Tools/Software: Open Source Tools

**SOFTCORE II SEMESTER
MBAF 442: DESIGN PATTERNS**

SoftCore : 3 Credits

Prerequisites: Software Architecture.

Learning Objectives:

1. To understand the concepts of Design Pattern and its applications in software development.

Learning Outcome:

1. Knowledge in Software design pattern and its applications.

Methodology: Lecture, Discussion, Case studies, observations, presentation.

Unit I: INTRODUCTION TO DESIGN PATTERNS-Design Patterns Arose from Architecture and Anthropology-Architectural to Software Design Patterns- Advantages of Design Patterns-Adapter Pattern- Strategy Pattern- Bridge Pattern-Abstract Factory Pattern.

Unit II: NEW PARADIGM OF DESIGN-Principles and Strategies of Design Patterns-Open-Closed Principle-Designing from Context-Encapsulating Variation. Commonality and Variability Analysis-Analysis Matrix- Decorator Pattern- Open Closed Principle- The Principle of encapsulating variation- Abstract Classes vs Interfaces.

Unit III: VALUES OF PATTERNS- Observer Pattern - Categories of Patterns – Template Method Pattern-Appling the Template Method to the Case Study- Using Template Method Pattern to Reduce Redundancy.

Unit IV: APPLYING DESIGN PATTERNS –Design Patterns: Factories- Singleton Pattern and the Double-Checked Locking Pattern-Appling Single ton Pattern to Case Study. Object Pool Pattern-Management of Objects- Factory Method Pattern-Object Oriented Pool Pattern.

Unit V: CASE STUDIES - What to Expect from Design Patterns – The Pattern Community – An Invitation - AParting Thought-Banking Case Study.

Text book and Reference Books

1. JasonMcC.Smith,"ElementaldesignPatterns",Pearson,2012.(Text Book)
2. Alan Shallowayand James R.Trott, "Design Patterns explained: A new perspectiveonObject-OrientedDesign,2006.
3. ErichGamma,RichardHelm,RalphJohnson,JohnVlissides,"DesignPatterns:
4. ElementsofReusableObject-OrientedSoftware",Addison-Wesley,2003.
5. EricFreeman,ElisabethFreeman,KathySierra,BertBates,"HeadFirstDesignPatterns",O'ReillyMedia,Inc.,2004.
6. Elizabeth Freeman,EricFreeman,BertBatesandKathySierra,"HeadFirst

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

Tools/Software: Open-Source Tools for Software Design and development.

SOFTCORE II SEMESTER
MBAF 443: SOFTWARE PROJECT MANAGEMENT

SoftCore : 3 Credits

Prerequisites: Basic knowledge of Software Design principles.

Learning Objectives:

1. To study the project management concepts.

Learning Outcome:

1. Gaining knowledge on Software project management principles and practices.

Methodology: Lecture, Discussion, Case studies, observations, presentation.

Unit I: Product, Process and Project - Definition: Product Life Cycle: Project Life cycle Models. Process Models-ISO-9001Model, Capability Maturity Model, SixSigma. 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 –Top down and bottom up planning - initial and final project schedule plans - types of activity relationships- estimating the duration of an activity- critical path- identifying milestones - activity responsibility matrix - project checklist.

Unit IV: Project tracking - Overview of project progress - project outlook- occurrence of tracking- tracking meetings-tracking meeting agenda-tracking meeting ground rules- recovery plans-the role of escalations. Project estimation- Processes and activities.

Unit V: 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, configuration management, skill sets, metrics-Case study. Emerging trends in Project Management: Globalization issues in Project Management, Impact of Internet on Project Management, People focused Process Models, Project Management tools.

Text book and Reference Books

1. Ramesh, Gopalaswamy: "Managing Global Software Projects ",TataMcGraw Hill, 2001.
2. NealWhitten:" Managing SoftwareDevelopment Projects,Formula forSuccess". John Wileyandsons,Inc,IIedition,1995
3. Humphrey,Watts:"Managing thesoftwareprocess",Addison Wesley,1986.
4. Pressman, Roger, "Software Engineering -APractitioner's approach", McGraw Hill, 2001.

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

Tools/Software: Open-Source Tools for AI Application development.

SOFTCORE II SEMESTER
MBAF 444: MUTUAL FUND MANAGEMENT AND SERVICES

SoftCore : 3 Credits

Prerequisites:

1. Basic Knowledge in Investment Management

Learning Objectives

1. To introduce concepts and theories related to – structure and types of Mutual Funds
2. To facilitate the application of the concepts and theories into practice in the field Mutual Funds.

Learning Outcome:

1. To understand and appreciate the concepts of Risk/ Return Tradeoffs.
2. To acquire required knowledge and demonstrate skills sets required for Mutual Funds.

Methodology:

Lecture, Discussion, presentation, problem and Case studies

Unit I: Introduction to Mutual Funds – Structure of Mutual Funds in India – Custodian – Role of AMC – NFO - Role of Registrar and Transfer Agents – Investors Right and Regulations

Unit II: Mutual Fund Products and Features – Open ended and Close ended – Equity Funds – Index Fund – Diversified large scale funds – Midcap funds – Sectoral funds – Other Schemes – NAV – Expenses Ratio – Portfolio turnover – Entry and Exit loads.

Unit III: Gold ETF –salient features – Market making by Aps – Creation units, cash components, Portfolio deposit - Debt Funds – Interest Rate Risk Credit Risk – Pricing of Debt Instrument – Debt Mutual fund schemes - Liquid funds – salient features – Floating rate scheme – Portfolio churning in liquid funds

Unit IV: Fund distribution and sales practices and investor services: Distribution channel, sales practices, application and redemption, investment plans and services - Accounting, valuation, taxation of MFs, measurement and evaluation of MF performance - Capital gain taxation – Indexation - Regulation of MFs and MFs prospectus and balance sheet and offer document: Role of regulator in India and self regulatory organization (SROs) and investors rights and obligations, contents of offer document, the key information memorandum - SIP – STP – SWP – Choosing between Dividend payout, Dividend Reinvestment and growth options.

Unit V: Management of MFs (Investor advisory services): Helping investors with financial plan and recommending financial planning strategies to investors; Strategies of investors in MF investing: Selecting the right investment products, understanding risk in fund investing and constructing model portfolio and selecting right fund.

Text Books and Reference Books:

1. **Mutual Funds in India: A Study of Investment Management by Amitabh Gupta - Anmol Publications**
2. Financial Services by MY Khan, McGraw Hill Education (India) Private Limited, 7th edition 2013
3. Mutual Funds in India by Sadhak.H, Response Books New Delhi.
4. Mutual Fund Year Book 2000.
5. Financial services, ICAFI publication.

Open Resources: <https://dbie.rbi.org.in>, www.amfindia.com

Tools/Software: AMFI

SOFTCORE II SEMESTER
MBAF 445: INSURANCE AND RISK MANAGEMENT

Soft Core: 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. To understand and appreciate the concepts of various insurance
2. To 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 Programmes 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 Book and Reference Books:

1. Rejda, George E. Principles of risk management and insurance. Pearson Education India, 2011.
2. Gupta, P. K. Insurance and risk management. Himalayan Books, Latest edition
3. Outreville, J. Francois. Theory and practice of insurance. Springer Science & Business Media, Latest Edition
4. Koller, Michael. Life insurance risk management essentials. Springer Science & Business Media, 2011.
5. Diacon, Stephen, ed. A guide to insurance management. Springer, 2016.

Open Resources:<https://www.irdai.gov.in/>, <https://www.licindia.in/>

Tools / Software: MS Excel

**SOFTCORE II SEMESTER
MBAF 446: MARKETING ANALYTICS**

Soft Core: 3 Credits

Prerequisites:

Basic Knowledge in Business analysis

Learning Objectives:

1. To introduce concepts and theories related to market research and analytics
2. To facilitate the application of the concepts and theories to real life situations and take marketing decisions

Learning Outcomes:

1. To understand and appreciate the concepts of marketing research
2. To acquire required knowledge and to develop approach to the problem

Methodology:

Lecture, Discussion, Case studies, Assignments and mini projects

Unit I: Introduction: Introduction and Early phases of marketing analytics- Introduction to marketing research-Defining marketing research problem-Developing approach to the problem-Research Design-Exploratory-Descriptive-Casual Research-Variables-

Unit II: Research Design- Experimentation-Measurement and Scaling-Questionnaire Design-Survey- Scales of Measurement- Marketing Research and social media-Nominal-Ordinal- Form Design-Questionnaire Construction-Collection of Data

Unit III: Data Analysis- Sampling Design and Procedure-Classification of sampling-Data Collection and preparation-Analysis of variance- Factor Analysis-SEM- Sample Size Determination-Data Preparation-Hypothesis Testing-Analysis of Variance- Correlation and Regression-Factor Analysis-Cluster Analysis -Multidimensional Scaling and Conjoint Analysis

Unit IV: Reporting and Presentation- Importance of Report and Presentations -Report Preparation and Presentation Process -Report Writing-Guidelines for Tables and Content-Guidelines for reporting and presentation

Unit V: Research and Ethics- Importance of Ethics- Data Privacy- Data Collection Protocols-Ethical practices- Ethical Concerns-Ethical Behaviour during research- Ethics in Presentation and Reporting -Social Media Research-Ethics in social media research-Text Analysis

Text Book and Reference Books:

1. Malhotra, Naresh K. "An applied orientation." **Marketing Research 2 (2010).**
2. Malhotra, Naresh K., and Satyabhusan Dash. **Marketing research: An applied orientation.** Pearson,, 2016.
3. Chapman, Chris, and Elea McDonnell Feit. **R for marketing research and analytics.** New York, NY: Springer, 2015.
4. Winston, Wayne L. **Marketing analytics: Data-driven techniques with Microsoft Excel.** John Wiley & Sons, 2014.
5. Hemann, Chuck, and Ken Burbary. "Digital Marketing Analytics." **Making Sense of Consumer Data in a Digital World,** Que Publishing, (2013).

Open Resources:<https://www.facebook.com/>, <https://twitter.com/>, <https://aws.amazon.com/opendata/>

Tools / Software: - MS Excel, R, Python, SPSS

List of Softcore Courses for Third Semester			
Course Code	Subject	Course Type	Credit
MBAF 531	Artificial Intelligence	Soft	3
MBAF 532	Blockchain and Cryptography	Soft	3
MBAF 533	Data Visualization and Reporting	Soft	3
MBAF 534	Credit Risk Management	Soft	3
MBAF 535	Capital Market Operations	Soft	3
MBAF 536	Financial Modelling using spreadsheet	Soft	3

**SOFTCORE III SEMESTER
MBAF 531: 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 the AI.

Learning Outcome:

1. The course provides the knowledge for designing and analyzing the performance of an intelligent system.
2. To provides the 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 book and Reference Books

1. **Stuart Russell and Peter Norvig, "Artificial Intelligence, A Modern Approach", Third Edition, Prentice Hall Series, 2010.**
2. TomTaulli, "Artificial Intelligence Basics: An on Technical Introduction", Apress ,2019 Edition.
3. Dr.Dheeraj Mehrotra, "Basics of Artificial Intelligence and Machine Learning,

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

Tools/Software:Open-Source Tools for AI Application development.

SOFTCORE III SEMESTER
MBAF 532: BLOCKCHAIN AND CRYPTOGRAPHY

Soft Core: 3 Credits

Prerequisites:

Computer Networks and Security systems.

Learning Objectives:

1. To introduce the concepts of BlockChain and its usages.
2. To introduce the concept of Cryptocurrencies and its use cases

Learning Outcome:

1. To gain practical knowledge in developing secure systems using block chain and cryptographic concepts
2. To develop secure systems using block chain and cryptographic concepts.

Methodology: Lecture, Discussion, Case studies, observations, presentation.

Unit I: BlockChain-Introduction to crypto economics -Byzantine agreement-Extensions of BFT(Ripple,Stellar)-Blockchain Dynamics -Public and private blockchains -Hard and soft forks-Sharding, Side chain-Verifiers-trust, cost and speed-Proof of work and other models.

Unit II: Smart Contracts -Distributed Virtual Machines, Smart Contracts, Oracles-Basics of contract law-Smart contracts and their potential, Trust in Algorithms, -Integration with existing legal systems-Open Zeplin, Open Law-Writing smart contracts.

Unit III: Cryptography and Other Technologies: Application of Cryptography to Blockchain–Using hash functions to chain blocks-Digital Signatures to sign transactions – Using hash functions for Proof-of-Work.-Putting the technology together- examples of implementations with their tradeoffs.

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 –Fixing on the fly-Layer 2 solutions-Lightning and Ethereum state channels

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

Text book and Reference Books

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

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

Tools/Software: Open-Source Tools for AI Application development.

SOFTCORE III SEMESTER
MBAF 533: DATA VISUALIZATION AND REPORTING

SoftCore : 3 Credits

Prerequisites:

Basic knowledge on Data warehousing and Data mining

Learning Objectives:

1. To introduce visual perception and core skills for visual analysis
2. To understand visualization for various analysis

Learning Outcome:

1. To gain knowledge in visual perception and core skills for visual analysis
2. To 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 VISUALANALYSIS: 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 book and Reference Books

1. Stephen Few, "Now you see it: Simple Visualization techniques for quantitative analysis", Analytics Press, 1stEdition, 2009 (TextBook)
2. Stephen Few, "Information dashboard design: The effective visual communication of data", O'Reilly, 2006.
3. Edward R. Tufte, "The visual display of quantitative information", Second Edition, Graphics Press, 2001.
4. Nathan Yau, "Data Points: Visualization that means something", Wiley,2013
5. Ben Fry, "Visualizing data: Exploring and explaining data with the processing environment", O'Reilly, 2008

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

Tools/Software: Open Source Tools

SOFTCORE III SEMESTER
MBAF 534: CREDIT RISK MANAGEMENT

Soft Core: 3 Credits

Prerequisites:

Basic Knowledge in Credit Management

Learning Objectives

1. To introduce concepts and theories related to – Credit Risk Management
2. To facilitate the application of the concepts and theories into practice in the field Credit Risk Management.

Learning Outcome:

1. To understand and appreciate the concepts of Risk/ Return Tradeoffs.
2. To acquire required knowledge and demonstrate skills sets required for Credit Risk Management.

Methodology:

Lecture, Discussion, presentation, problem and Case studies

Unit I: Introduction and Overview: Financial Risk: An Overview, Evolution, and the Environment. Risks definition (market, credit, liquidity, operational), more specifically on the identification of different forms of risk (currency, interest rate, equity, commodity)

Unit II: Credit policy and Loan characteristics-The credit process –Characteristics of different types of loans- Evaluating commercial loan requests – Financial statement analysis- Cash flow analysis-Fundamental credit issues - Credit analysis-Different types of borrowers – Balance sheet analysis for lending – Forms of advances secured and unsecured advances- Short term and long term advances.

Unit III: Credit Risk: Definition - Framework for risk management - RBI guidelines for risk management - Methods for estimating capital requirements -Credit risk - Standardized approach and advanced approach –Capital Adequacy Norms.

Unit IV: Credit Risk modeling- Economic Modeling– Simulation techniques, VaR, Stress test, Back Test, Sensitivity analysis. Statistical Modeling- Discriminant Analysis, LOGIT/PROBIT, Multiple Linear Regression, Decision Trees

Unit V: Credit Risk management: Risk Rating and Risk Pricing, Loan review mechanism/ Credit audit, RAROC pricing. Credit Derivatives-Hedging–Forwards–Futures–Options Arbitrage opportunities-Regulatory prescriptions of risk management–Exposure Norms-Systems Audit-Risk Organization and Policy

Text Books and Reference Books:

1. **Foundations of Banking Risk: An Overview of Banking, Banking Risks, and Risk-Based Banking Regulation by GARP (Global Association of Risk Professionals).**
2. Moorad Choudhry, Bank Asset and Liability Management: Strategy, Trading, Analysis, Wiley Publishing.
3. John C. Hull, Risk Management and Financial Institutions, Pearson, 2009
4. Indian Institute of Banking and Finance (IIBF), Risk Management, Macmillan Publishers India, 2010.
5. Risk Measurement Models to Capital Allocation Policies, Wiley, ISBN:978-0-470-02978 IIBF Material.

Open Resources: <https://dbie.rbi.org.in>, <https://www.imf.org/en/Data>

Tools/Software: Open-Source Tools

SOFTCORE III SEMESTER
MBAF 535: CAPITAL MARKET OPERATIONS

Soft Core: 3 Credits

Prerequisites: Basic knowledge on Financial Market

Learning Objectives: Prepare Students -

1. To introduces the operations of Securities market
2. To understand the Trading process, settlement and legal frameworks

Learning outcome:

- To understand the Trading process, settlement and legal frameworks
- To acquire practical knowledge in stock and Forex trading

Methodology:

Virtual Trading, Opening Trading and Demat Accounts and Trading hands-on, Lecture, Discussion, Case studies, observations, presentation, and Trading games

Unit I: SECURITIES MARKET AND ITS OPERATION - Primary Market – Secondary Market – Key Indicators of secondary market - Market Capitalization, Market Capitalization Ratio, Turnover, Turnover Ratio – Products and Participation – Market segments and their products.

Unit II: FOREX MARKET AND ITS OPERATION – Forex market and its organisation – Exchange Rates and its calculations – Forex Transactions – Types of Forex market – Forex market operations.

Unit III: ONLINE TRADING - Procedure/process involved in performing share trading - OCITE - Neat system – BOLT System - market types - trading system users hierarchy - local database - market phases - logging on - log off/exit from the application. Online Forex Trading–Operations – procedures. Opening of Trading and DEMAT Accounts – Procedure for opening Trading and DEMAT accounts – Trading Vs. Investment – Steps to be followed for trading and Investment.

Unit IV :CLEARING, SETTLEMENT AND RISK MANAGEMENT - key terminologies used in clearing and settlement process - transaction cycle - settlement agencies -clearing and settlement process – Risk management in Trade and settlement – Depositories and their Roles. Legal Frameworks – SEBI - Role of SEBI regarding the protection of investor - FEDAI Regulations – Role of RBI.

Unit V :FUNDAMENTAL VALUATION CONCEPTS - Time value of money – Fundamental Analysis - understanding financial statements - Ratio analysis – Economic Analysis - Technical analysis – Different Techniques Market Capitalization and calculation of Market Capitalization - Index – Types – Calculation of Index – Market return and Beta Calculation

Text book and Reference Books

1. EVERYTHING YOU WANTED TO KNOW ABOUT STOCK MARKET INVESTING - Network 18 Publication Pvt. Ltd – 2 Edition, 2017
2. Sid Bhattacharjee, Generate Daily Income from Financial Market, Partridge India, 2014 November
3. Punithavathy Pandian, Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd, 2nd edition, 2012. (Text Book)
4. V. A. Avadhani, Investment and Securities Market in India , Himalaya Publishing House.
5. Sanjeev Agarwal, A Guide to Indian Capital Market , Bharat Publishers

Open Resources:

www.rbi.org.in, www.fedail.com, www.useindia.com, www.mcx.sx.com, www.nseindia.com, www.easy.forex.com, www.indiaforex.com, www.nism.ac.in

Tools/Software:

Moneybhai Virtual Trading Platform , ICICI Trading Virtual Trading Platform, NSE Virtual Trading Platform

SOFTCORE III SEMESTER
MBAF536: FINANCIAL MODELING USING SPREADSHEET

Soft Core: 3 Credits

Prerequisites:

Basic knowledge in Finance and Computer

Learning Objectives:

1. To introduce concepts and theories related to – Financial modelling
2. To facilitate the application of financial models in real life business

Learning Outcome:

1. To understand and appreciate the concepts of Financial models
2. To acquire required knowledge and demonstrate financial modeling skills

Methodology:

Lecture, Discussion, Case studies, Assignments and mini projects

Unit I: Financial Models Introduction to modelling, introduction to spreadsheet, database functions in spreadsheet, finance function in spreadsheet, creating dynamic models. Basic Financial Calculations – Financial Statement Analysis – Financial Ratios – Cash Flow Analysis - Financial Budget & other Budget Modelling – Break even analysis - Financial Forecasting – Valuation and Rates of Return

Unit II: Corporate Financial Models Calculation of Time value of Money - Cost of Capital – Leverage Analysis - Capital Budgeting – Financial analysis of Leasing

Unit III: Portfolio Models Calculating of Efficient Portfolios – Calculating variance – Covariance Matrix – Estimating- Beta and Security Market line – Portfolio Optimization – Value at Risk

Unit IV: Derivatives & Option Pricing Models and Bonds -Introduction to Options – Binomial Option Pricing Model - Black Scholes Model – Option-Greeks - Calculation of Bond Duration - Returns – Modelling the Term Structure.

Unit V: Statistical Models- Application of Statistical tools for financial calculations and Model Building through Excel- Addon.

Text Books and References:

1. **Simon Benninga, Financial Modeling, MIT Press, Cambridge**
2. Scott Proctor, Building Financial Models, Wiley India private Ltd, 2013
3. Clive Marsh, Business and financial models, konganPage.
4. Alastair L. Day, Mastering Financial Modelling in Microsoft Excel, 2/E pearson
5. Chandan Sengupta, Financial Analysis and Modeling using Excel and VBA, 2/E, Wiley.

Open Resources: Case studies, Companies Balance sheet

Tools / Software: - MS excel

List of Softcore Courses for Fourth Semester			
Course Code	Subject	Course Type	Credit
MBAF 541	Cyber Security and Forensic	Soft	3
MBAF 542	Information System Control and Audit	Soft	3
MBAF 543	Natural Language Dialoguing and Chatbots	Soft	3
MBAF 544	Social Media Analytics	Soft	3
MBAF 545	Fixed Income Securities and Treasury Management	Soft	3
MBAF 546	Forex and Currency Derivatives	Soft	3
MBAF 547	Corporate Governance & Business Ethics	Soft	3
MBAF 548	Project Management	Soft	3

SOFTCORE IV SEMESTER
MBAF 541: CYBER SECURITY AND FORENSIC

Soft Core: 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 Outcome:

1. To understand the practices of Forensic Science
2. To 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 - Copy Right - 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 : 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 book and Reference Books

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

Open Resources:

Research papers from Journals and Conferences with Open Access

Tools/Software: Open Source Tools

SOFTCORE IV SEMESTER
MBAF 542: INFORMATION SYSTEM CONTROL AND AUDIT

Soft Core: 3 Credits

Prerequisites: Basics of Information System

Learning Objectives:

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

Learning Outcome:

1. To understand the concepts of Audit and Control in information system.
2. To 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 book and Reference Books

1. **Ron Weber, "Information System Control and Audit", Prentice Hall, 2011. (Text book)**
2. Dube, D.P. and Gulati V.P., -Information System Audit and Assurance (Including CaseStudies and Checklists from the Bank), Tata McGraw-Hill, 2ndEdition, 2008.
3. Frederick Gallegos, Daniel P. Manson, SandraSenft, and Carol Gonzales Gallegos, - Information Technology Control and Audit, Auerbach Publications, Second Edition, 2004
4. Alexander, Michael. 2007. Microsoft Access 2007 Data Analysis. Wiley. ISBN 978- 0-470-10485-9
5. Mayor-Schonberger, V., andK. Cukier. Big Data. First Mariner Books

Open Resources:

Research papers from Journals and Conferences with Open Access

Tools/Software: Open Source Tools

SOFTCORE IV SEMESTER
MBAF 543: NATURAL LANGUAGE DIALOGUING AND CHATBOTS

Soft Core: 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 Outcome:

1. To understand and appreciate the concepts of natural language processing.
2. To 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 Word Net 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.

Unit III :Machine Translation - rule-based techniques, Statistical Machine Translation, parameter learning using Expectation- Maximization - Information Extraction - Introduction to Named Entity Recognition and Relation Extraction - Natural Language Generation - the potential of using ML - Advanced Language Modelling – Applications - summarization, question answering.

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 book and Reference Books

1. James Allen, Natural Language Understanding, Second Edition, Benjamin/Cummings Publishing Co. Inc., Subs. Of Addison-Wesley Longman Publ. Co390 Bridge Pkwy. Redwood City, CA United States, 1995.
2. Srinivasan Janarthanam, “Hands-On Chatbots and Conversational UI Development: Build chatbots” Published by Packet Publishing Ltd., First Edition, 2017.
3. Jurafsky, Dan and Martin, James, Speech and Language Processing, Second Edition, Prentice Hall, 2008.
4. Cathy Pearl, “Designing Voice User Interfaces: Principles of Conversational Experiences”, Shroff/O’Reilly, First Edition, 2017.
5. Michael McTear, Zoraida Callejas, David Griol, “ The Conversational Interface: Talking to Smart Devices”, Springer, First Edition 2016.

Open Resources:

Research papers from Journals and Conferences with Open Access

Tools/Software: Open Source Tools

**SOFTCORE IV SEMESTER
MBAF 544: SOCIAL MEDIA ANALYTICS**

SoftCore : 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 Outcome:

1. To familiarize the learners with the tools of social media analytics.
2. To 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 book and Reference Books

1. Matthew Ganis, AvinashKohirkar, "Social Media Analytics: Techniques and Insights for Extracting Business Value Out of Social Media", Pearson, 1st edition, 2016
2. Jim Sterne, "Social Media Metrics: How to Measure and Optimize Your Marketing Investment", Wiley, 1st edition, 2010
3. Marshall Sponder, "Social Media Analytics", McGraw Hill, 1st edition, 2011

Open Resources:

Research papers from Journals and Conferences with Open Access

Tools/Software: Open Source Tools

SOFTCORE IV SEMESTER
MBAF 545: FIXED INCOME SECURITIES AND TREASURY MANAGEMENT
Soft Core: 3 Credits

Prerequisites:

Basics of Treasury and Debt instruments.

Learning Objectives:

1. To introduce the basics of debt markets and treasury operations.
2. To provide the skills required to calculate yields, bond values etc.

Learning Outcome:

1. To introduce the basics of debt markets and treasury operations.
2. To help the students to work in the treasury divisions of the banks

Methodology: Lecture, Discussion, Case studies, observations, presentation.

Unit I: Debt Instruments: Fundamental Features–Indian Debt Markets–Market segments–Participants–Secondary Market for Debt instruments–Bond Market–SEBI (Disclosure and Investor Protection) guidelines 2008.

Unit II: Analysis and Valuation of Bonds: Pricing of bonds–Measuring yields– Bond price volatility– Factors affecting bond yields and the term structure of interest rates.

Unit III: Bond Portfolio Management Strategies: Passive management strategies–Active management strategies–Global fixed income investment strategy–Core-plus bond portfolio management– Matched-funding Techniques.

Unit IV: Central Govt. Securities: G- Secs–Tenor and Yields–Primary Issuance Process, Participants–SGL accounts– Dealers– Secondary Market– Negotiated Dealing system– T bills–Cut off Yields–State Govt. Bonds–Money market instruments–Call Money Markets – Participants

Unit V: Fixed Income Derivatives: Meaning–Types–Mechanics for forward rate agreements–Guidelines for exchange traded interest rate derivatives.

Text book and Reference Books

1. Frank J. Fabozzi, **Bond Markets, Analysis and Strategies**, Pearson, 8th Edition, 2012
2. Reilly, Brown, **Investment Analysis and Portfolio Management**, Cengage Learning, Latest Edition
3. **Fixed-Income Securities**. L. Martellini, P. Priaulet and S. Priaulet. John Wiley & Sons, Chichester, UK, Latest Edition.
4. Parameswaran, Sunil Kumar, "Fixed Income Securities: Concepts and Applications" Walter de Gruyter GmbH & Co KG, 2019.
5. Steven M Braggs — **Treasury Management: The Practical Guide**, Wiley, Latest Edition 2010

Open Resources: <https://www.nseindia.com/>

Research papers from Journals and Conferences with Open Access,

Tools/Software: Open-Source Tools for AI Application development.

SOFTCORE IV SEMESTER
MBAF 546: FOREX AND CURRENCY DERIVATIVES

Soft Core: 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 Outcome:

1. To understand and appreciate the concepts of Forex and Currency Management
2. To acquire required knowledge and demonstrate skills sets required for Forex Trading

Methodology:

Lecture, Discussion, Case studies, observations, presentation, 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 book and Reference Books

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

Open Resources: www.rbi.org.in, www.fedail.com, www.useindia.com, www.mcx.sx.com, www.nseindia.com, www.easy.forex.com, www.indiaforex.com, www.nism.ac.in

Tools/Software: Virtual Trading Open software

SOFTCORE IV SEMESTER
MBAF 547: CORPORATE GOVERNANCE & BUSINESS ETHICS

Soft Core: 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 Outcome:

1. To understand and appreciate the concepts of good governance and ethics
2. To 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 Books and References:

1. **Tricker, RI Bob, and Robert Ian Tricker. Corporate governance: Principles, policies, and practices. Oxford University Press, USA, 2015.**
2. Mathur, U. C. Corporate Governance And Business Ethics: Text And Cases. Macmillan, Latest
3. Fernando, A. C. Business ethics: an Indian perspective. Pearson Education India, Latest.
4. DesJardins, Joseph R., and Joseph R. DesJardins. An introduction to business ethics: McGraw-Hill Higher Education, Latest
5. Mallin, Christine A., ed. Handbook on Corporate Governance in Financial Institutions. Edward Elgar Publishing, 2016.

Open Resources: Case studies

Tools / Software: -NA

**SOFTCORE IV SEMESTER
MBAF 548: PROJECT MANAGEMENT**

Soft Core: 3 Credits

Prerequisites:

Basic Knowledge in Business

Learning Objectives:

1. To understand the concept of project and steps in project management.
2. To enable the students to prepare business proposals and evaluate the technical feasibility, financial viability, market acceptability and social desirability of projects.

Learning Outcome:

1. To understand and appreciate the concepts of project and steps in project management
2. To acquire required knowledge and demonstrate skills sets required for preparing business proposals and evaluate the technical feasibility, financial viability, market acceptability and social desirability of projects

Methodology:

Lecture, Discussion, Case studies, observations, presentation, Business plan assignment, problem and Problems for evaluation of projects financially and network analysis.

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. Project Management: The Managerial Process by Erik Larson and Clifford Gray (2017); McGraw Hill Education
2. Gopalakrishnan P and Ramamoorthy, V.E., Project Management, Macmillan, Latest Edi.
3. Projects: Planning, Analysis, Selection, Financing, Implementation, and Review by Prasanna Chandra (2017); McGraw Hill Education; Eighth edition
4. B.B. Goel, Project Management – Principles and Techniques, Deep and Deep
5. Project Planning and Control with PERT and CPM B C Punia by K K Khandelwal (2016); Laxmi Publications Private Limited; Fourth edition

Open Resources:

1. www.pmi.org, 2. www.projectmanagement.com, 3. www.mindtools.com,
4. www.projectscentre.com

Tools/Software: ERP, Software for Project Development